P.W. GROSSER CONSULTING



February 11, 2015

Ellis Koch RXRGIP 1750 New Highway Farmingdale, NY 11747

RE: Leachable Arsenic and Lead Sampling Report – Garvies' Point Redevelopment Project

Dear Mr. Koch:

P.W. Grosser Consulting, Inc. (PWGC) has prepared this letter to detail the findings of the arsenic and lead investigation performed on the Former Li Tungsten and Captain's Cove Sites (the Site) at the request of the New York State Department of Environmental Conservation (NYSDEC) to determine the potential fate and transportation of these compounds to help guide Site Specific Soil Cleanup Objectives (SCOs). The investigation was performed in accordance with the January 6, 2015, Leachable Arsenic and Lead Sampling Work Plan. The purpose of the investigation was to further investigate and confirm the presence of arsenic and lead hotspots and determine if arsenic could produce a leachate that exceeds the NYSDEC Groundwater Quality Standard (GQS) and if lead could produce a leachate that exceeds the United States Environmental Protection Agency (USEPA) Resource Conservation and Recovery Act (RCRA) Hazardous Waste Classification.

Background

The 2014 Pre-Construction Confirmatory/Insurance Data Gap Subsurface Investigation identified a total of 39 soil borings where one or more depth intervals exceeded the Site-Wide Cleanup Level (SWCL) of 24 or 400 mg/kg, arsenic and lead, respectively. The soil borings with the highest concentrations of arsenic and/or lead are listed below:

d/or lead are	e listed below:	
Lead		
0	LT-C-024 (2-4')	4,480 mg/kg
0	CC-C-023 (6-8')	6,030 mg/kg
0	CC-C-029 (8-10')	1,180 mg/kg
0	CC-C-030 (8-10')	983 mg/kg
• Arsenio		
0	CC-C-019 (0-2')	1,850 mg/kg
0	CC-C-022 (0-2')	379 mg/kg
0	CC-C-028 (0-2')	253 mg/kg
0	LT-C-003 (0-2')	107 mg/kg
0	LT-C-024 (2-4)	581 mg/kg
0	LT-C-026 (6-8')	63.2 mg/kg
0	LT-C-035 (4-6')	58.6 mg/kg
0	LT-C-056 (2-4')	105 mg/kg
0	LT-G-019 (2-4')	181 mg/kg

The above list was included in the work plan and were the locations targeted for this investigation. Please note that LT-C-047 had high concentrations but has been remediated with the removal of underground storage tanks at the Site. In addition, LT-R-002 and LT-R-003 had high concentrations of arsenic in the soil but groundwater samples collected from these borings in accordance with the procedures established in





the Pre-Construction Confirmatory/Insurance Data gap Subsurface Investigation Work Plan showed dissolved arsenic concentrations below NYSDEC GQS which indicates that arsenic does not appear to be leaching out of the soil into the groundwater. Therefore these were not included on the list and the locations were not selected for further evaluation.

Field Investigation

The investigation occurred between January 7 and 15, 2015. The Leachable Arsenic and Lead Sampling Work Plan originally proposed for soil borings to be installed immediately adjacent to the hot spot locations. However, due to the cold temperatures and the frozen ground, a direct push drill rig could not be utilized and an excavator was supplemented to sample and evaluate soil quality at these locations. Also, PWGC believes that this method would allow for screening and contact with more material which would increase the chance to come in contact with more impacted material. The procedures followed the Test Pit Protocol, Section 4.4.1 of the Pre-Construction Confirmatory/Insurance Data Gap Subsurface Investigation Work Plan with the screening modifications detailed in the Leachable Arsenic and Lead Sampling Work Plan.

Test Pit Protocol

Prior to the installation of each test pit, 10-mil polyethylene sheeting, sufficiently large enough to hold the anticipated excavated soil was laid on the ground in the area where the excavated soil was placed. At each location, a track mounted excavator was utilized to perform a test pit. Each test pit was performed in two foot lifts until the previously established arsenic/lead exceedance confirmation depth was reached. This depth varied from two feet to ten feet below grade surface (bgs).

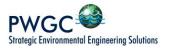
PWGC documented soil types, characteristics, changes in lithology, odors, and wastes (if any) encountered in the test pits. For each lift, a five point composite sample was collected, homogenized and screened with the XRF for arsenic and lead detections. This characterization and screening protocol was utilized for both the soil boring and test pit investigative approaches during the Pre-Construction Confirmatory/Insurance Data Gap Subsurface Investigation. The full two-foot interval from soil borings was composited prior to screening with the XRF during the previous investigation. Characterization, photos, and screening results were recorded in a test pit log (Appendix A). Samples submitted for laboratory analysis were collected from the intervals with the highest XRF field readings.

Lead Investigation Findings

Table 1 shows the screening results and total concentrations for lead from the selected locations from the Pre-Construction Confirmatory/Insurance Data Gap Subsurface Investigation. Additionally, the table shows the screening results obtained during this investigation as well as reporting the total values which were used to determine which samples should be run for TCLP analysis.

Screening results from the test pits did not identify the presence of lead above 400 mg/kg in the six locations (CC-C-019, CC-C-022, CC-C-029, CC-C-030, & LT-C-024) initially selected for evaluation at the same depth interval, and even from the location that had significant lead concentrations above 450 mg/kg in the Pre-Construction Confirmatory/Insurance Data Gap Subsurface Investigation. Screening results ranged from 56 to 336 mg/kg.

As shown on **Table 1**, total lead analytical results from this investigation ranged from 7.2 mg/kg to 473 mg/kg. The highest concentration (473 mg/kg) was detected in CC-C-019 (0-2'). This sample was not originally identified for lead analysis but was selected due to elevated XRF screening results. The three highest lead detections observed during the Pre-Construction Confirmatory/Insurance Data Gap Subsurface



Investigation (1,180 mg/kg at CC-C-029 (8-10'), 4,480 mg/kg at LT-C-024 (2-4'), and 6,030 mg/kg at CC-C-023 (6-8')) were significantly lower during this investigation (141 mg/kg at CC-C-029 (8-10'), 7.2 mg/kg at LT-C-024 (2-4'), and 215 mg/kg at CC-C-023 (6-8')).

Based upon the initial results, supplemental sampling was performed between January 14 and 15, 2015 and included installation of a second test pit adjacent to CC-C-023, CC-C-029, CC-C-030, and LT-C-024. In addition, test pits were installed adjacent to LT-G-022 and LT-GI-001 which also had elevated lead detections during the Pre-Construction Confirmatory/Insurance Data Gap Subsurface Investigation.

Screening results from these test pits confirmed the presence of lead above 400 ppm at four of the six locations selected for evaluation. Screening results ranged from 225 to 46,200 mg/kg. Significant discoloration was noted at 10 feet below grade at CC-C-030 and the interval was screened at both 8 feet and 10 feet. Screening levels were significantly different between the 8 foot interval (568 mg/kg) and the 10 foot interval (46,200 mg/kg).

Total lead analytical results from this second round of sampling were initially under-reported by the lab. As two samples bottles were supplied for each location the lab was asked to analyze the second bottle while it investigated the cause of the under-reporting. The correctly reported results for the first bottles analyzed ranged from 93.9 mg/kg to 13,900 mg/kg in the initial analysis, over seven sample locations. Lead concentrations in the re-analyzed samples ranged from 72.3 mg/kg to 19,900 mg/kg over these same locations. The two samples collected from CC-C-030 were detected well above the SWCL value of 400 mg/kg (8,620 mg/kg at 8 feet and 19,900 mg/kg at 10 feet). The other detections were still below the SWCL.

Several test pits were performed in the vicinity of the exceedances identified during the Pre-Construction Confirmatory/Insurance Data Gap Subsurface Investigation, which did not result in seeing a greater occurrence of elevated lead detections. Rather, lower concentrations were observed with the exception of CC-C-030.

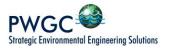
Based upon the findings of the investigation, CC-C-030 (8') and CC-C-030 (10') were further analyzed by TCLP. TCLP analytical results were well above the USEPA RCRA Hazardous Waste Characteristic value for lead in the two samples (68.9 mg/L in CC-C-030 (8') and 51.4 mg/L in CC-C-030 (10').

Arsenic Investigation Findings

Table 2 shows the screening results and total concentrations for arsenic from the selected locations from the Pre-Construction Confirmatory/Insurance Data Gap Subsurface Investigation and this investigation. Additionally, the table shows the screening results obtained during this investigation as well as reporting the total values that were used to determine which samples should be run for SPLP analysis.

Screening results from the test pits confirmed the presence of arsenic above 24 mg/kg at seven (CC-C-019, CC-C-022, CC-C-028, LT-C-003, LT-C-024, LT-C-035, & LT-C-056) of the nine locations selected for evaluation at the same depth interval. Screening results ranged from non-detect to 684 mg/kg. The highest screening result was observed at CC-C-019 (0-2') which had the highest analytical result (1,850 mg/kg) from the Pre-Construction Confirmatory / Insurance Data Gap Subsurface Investigation. The screening results for the other locations were significantly lower.

As shown on Table 2, total arsenic analytical results from this investigation ranged from 2.7 mg/kg to 993



mg/kg. The highest concentration was detected in CC-C-019 (0-2') which correlates to the highest screening result and was also the location of the highest arsenic concentration detected during the Pre-Construction Confirmatory/Insurance Data Gap Subsurface Investigation. The next two highest concentrations were detected at LT-C-035 (4-6') at a concentration of 652 mg/kg and at CC-C-022 (0-2') at a concentration of 187 mg/kg. Each of the remaining samples was detected at concentrations below the SWCL of 24 mg/kg.

Based upon the initial results, CC-C-019 (0-2'), CC-C-022 (0-2'), and LT-C-035 (4-6') were further analyzed by SPLP. SPLP arsenic results were well above the NYSDEC GQS value for arsenic (25 μ g/L) in two of the three samples which included CC-C-019 (0-2') at 360 μ g/L and LT-C-035 (4-6') at 200 μ g/L. Total arsenic concentrations for these samples were 652 mg/kg and 993 mg/kg, respectively. CC-C-022 (0-2') with a total arsenic concentration of 187 mg/kg resulted in a SPLP value of 5.9 μ g/L, which is well below the NYSDEC groundwater standard of 25 μ g/L. Given that this SPLP value is an order of magnitude below the groundwater standard, total arsenic concentration in excess of 187 mg/kg should not result in groundwater impact above NYSDEC groundwater standards.

Based upon the initial results, supplemental sampling was performed between January 14 and 15, 2015 and included installing a second test pit adjacent to CC-C-028 and LT-G-024. In addition, test pits were installed adjacent to LT-G-022 and CC-C-030 that also had elevated arsenic screening results when scanned for the presence of lead previously.

Screening results from these test pits confirmed the presence of arsenic above 24 mg/kg in each of the four locations selected for evaluation. Screening results ranged from 37 to 1,542 mg/kg. The highest concentration was detected at CC-C-030 (10') where discoloration was observed and elevated lead concentrations were detected. Based upon the screening results two samples, CC-C-030 (10') and LT-G-022 (0-2'), were further analyzed for total arsenic.

Total arsenic analytical results from this round of sampling were 51.9 mg/kg at CC-C-030 (10') and 76.6 mg/kg at LT-G-022 (0-2'). The CC-C-030 (10') result of 51.9 mg/kg was noted to have a significant difference from the XRF screening result of 1,542 mg/kg. PWGC requested that sample CC-C-030 (10') be re-analyzed by the lab. The arsenic concentration in the re-analyzed sample was 67.8 mg/kg. Interference of lead in the sample may have biased the XRF screening result high which may explain the low total arsenic concentration in the laboratory result. Based upon these results, SPLP testing was not performed on these samples.

Complete laboratory analytical data reports are attached in **Appendix B**.

Data Validation and Data Usability

RXR Glen Isle Partners, LLC retained the services of Laboratory Data Consultants, Inc (LDC), of Carlsbad, California to perform validation of data obtained during the investigation. Full data validation was performed on 100% of the sample delivery groups. All data were deemed acceptable by the data validator, incorporating data qualifiers as appropriate. LDC narratives and the full data validation reports are provided in **Appendix C**.

Conclusions

The supplemental investigation included the installation of twenty test pits to further evaluate Site-wide arsenic and lead concentrations. Direct push drilling was not feasible and the test pit method allowed for



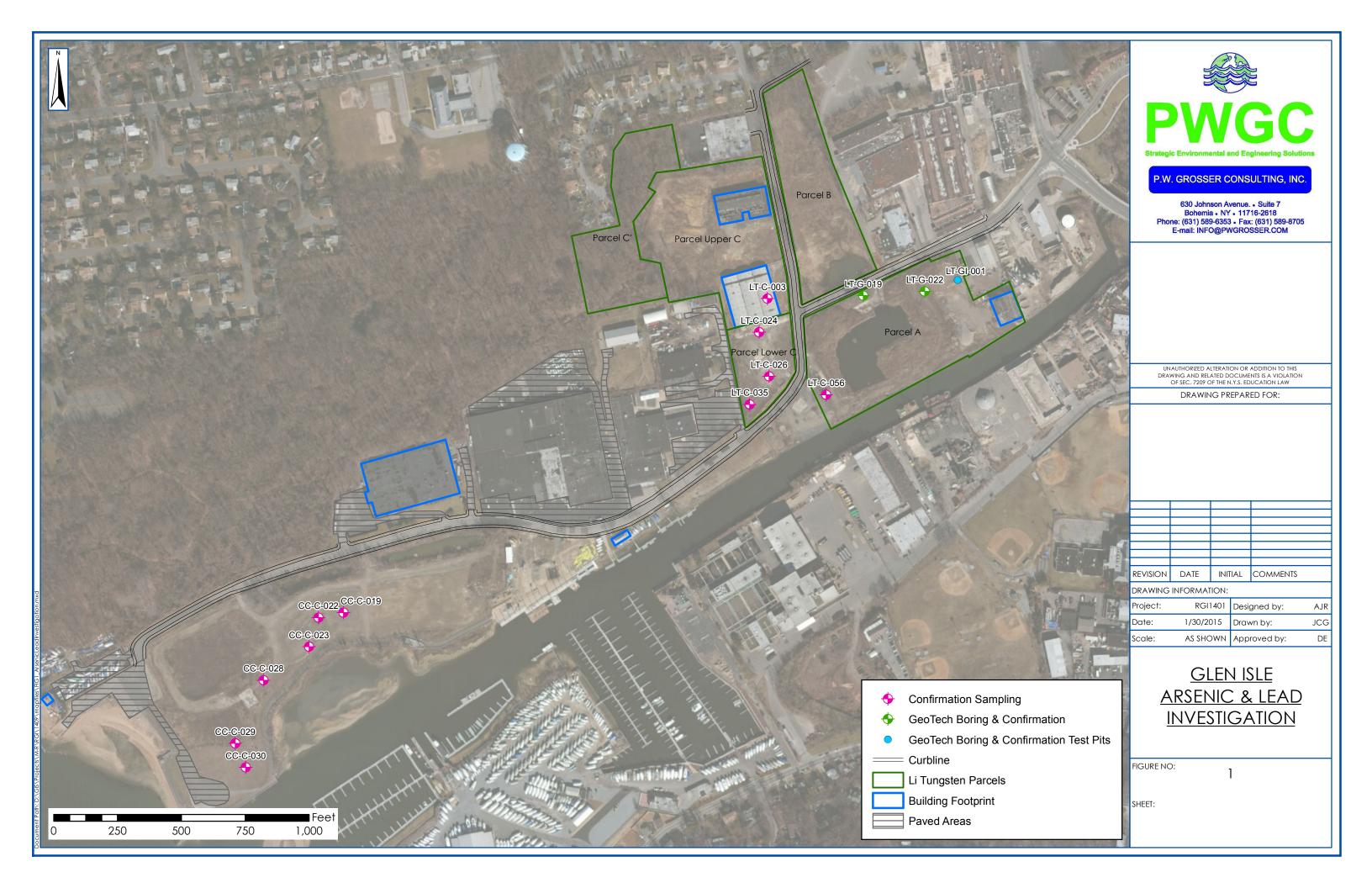
the evaluation and collection of a more representative sample from a larger area compared to the discrete sampling performed as part of the Pre-Construction Confirmatory/Insurance Data Gap Subsurface Investigation. At each two-foot interval, five grabs were collected and homogenized together prior to screening and sampling. Laboratory analysis was performed on the samples with the highest field XRF readings. Investigations at the site have shown inconsistent correlations between field screening and laboratory results. Non-target compounds and/or elevated target compounds have been shown to skew screening results. Analytical results indicate that elevated arsenic and lead detections are not as extensive as the Pre-Construction Confirmatory/Insurance Data Gap Subsurface Investigation results indicate. A few exceedances previously identified were confirmed but in general, soil quality improved when evaluated over a larger homogenous area.

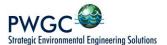
The evaluation of arsenic through SPLP showed that elevated levels up to 187 mg/kg did not produce a leachate (5.9 μ g/L) greater than the NYSDEC GQS. The data supports that a concentration greater than 187 mg/kg will likely not result in groundwater impact in excess of groundwater standards.

Levels of lead having the characteristics of hazardous waste were identified at CC-C-030 where discoloration of soil was noted and elevated screening levels were detected. No other screening or analytical results were elevated to the point where a hazardous waste characterization would be warranted.



FIGURE





TABLES

RGI1409 - Glen Isle Arsenic and Lead Investigation

Table 1 Lead Results

	Lead Data												
Sample					Tota	al Pb			TCLP Pb				
ID	Depth	XRF	Data Gap			As/Pb Inv	vestigation		mg/L				
ID.		Value	Jan-Feb 2014	XRF Result	Jan 7-9, 2015	XRF Result	Jan 14-15, 2015	Jan 14-15, 2015 (Re Run)	Jan 2015				
CC-C-019	0-2'	182	772	336	473	-							
CC-C-022	0-2'	252	212	333	371								
CC-C-023	6-8'	302	6,030	210	215	566	267	265					
CC-C-029	8-10'	118	1,180	111	141	544	239	416					
CC-C-030	8-10'	319	983	123	175								
CC-C-030	8'					568	1,780	8,620	68.9				
CC-C-030	10'					46,200	13,900	19,900	51.4				
LT-C-024	2-4'	1,826	4,480	56	7.2	225	93.9	72.3					
LT-G-022	0-2'	54	885			537	285						
LT-GI-001	4-6'	300	893			227	341						

Notes:

"Total" concentrations in mg/kg

TCLP concentrations in mg/L

"--" means a sample was not collected and/or analyzed

RGI1409 - Glen Isle Arsenic and Lead Investigation

Table 2
Arsenic Results

	Arsenic Data												
Sample					Tota	al As			SPLP As				
ID	Depth	XRF	Data Gap			As/Pb Inv	vestigation		μg/L				
ID.		Value	Jan-Feb 2014	XRF Result	Jan 7-9, 2015	XRF Result	Jan 14-15, 2015	Jan 14-15, 2015 (Re Run)	Jan 2015				
CC-C-019	0-2'	56	1,850	684	993				360				
CC-C-022	0-2'	56	379	49	187				5.9 J				
CC-C-028	0-2'	8	253	41	13	50							
CC-C-030	10'	<13	15.8			1,542	51.9	67.8					
LT-C-003	0-2'	68	107	46	2.7								
LT-C-024	2-4'	661	581	34	6.9								
LT-C-026	6-8'	16	63.2	ND	4.3								
LT-C-035	4-6'	230	58.6	44	652				200				
LT-C-056	2-4'	20	105	30	13.1								
LT-G-019	2-4'	177	181	ND	3.5	37							
LT-G-022	0-2'	7	31.8			136	76.6						

Notes:

"Total" concentrations in mg/kg

SPLP concentrations in μg/L

[&]quot;--" means a sample was not collected and/or analyzed



APPENDIX A

					7	EST PIT LOG	SHEET				
TEST PIT NUMB	BER:	LT-C-056		Instrument		N	1odel Number			Serial Number	
GEOLOGIST:		AR		PID:	MiniRae 2000)		110-01116	67		
HEALTH TECHN	ICIAN:	-		XRF:	Thermo Nitor	1		XL3t 600			
WEATHER:		Sunny 18-28°		SCALER:	-			-			
Excavation Equi	ipment:	Hitachi 350LC Excavator			Testpit Area:		5X10				
Sampling Meth	od:	Composite			Test Pit Depth	ո:	4'				
Start Time:		8:40			Completion T	ime:	8:45				
Start Date:		1/7/2015			Completion Date:		1/7/2015				
Sample ID:			LT-C-056(2-	4)			Monitoring Action levels		As	Pb	
Sample Time:			8:50						24ppm	400 ppm	
Depth	Advance	Recovery			Soil	Moisture	Soil Description	As	Pb	Photo Log	
(ft)	(ft)	(ft)			Color	Content		(ppm)	(ppm)		
2	2	2		SM	10YR4/1	D	Silty sand with gravel, some cobbles.	ND	ND		
3	2	2			10YR4/3			30	70		

					Ţ	EST PIT LOG	SHEET			
TEST PIT NUME	BER:	LT-G-019_1		Instrument		N	Nodel Number	Serial Number		
GEOLOGIST:		AR		PID:	MiniRae 2000)		110-01116	57	
HEALTH TECHN	NICIAN:	-		XRF:	Thermo Nitor	1		XL3t 600		
WEATHER:		Sunny 18-28°		SCALER:	-			-		
Excavation Equ	ıipment:	Hitachi 350LC Excavato	or		Testpit Area:		5X10			
Sampling Meth	nod:	Composite			Test Pit Depth	ո:	4'			
Start Time:		9:10			Completion Time: 9:15					
Start Date:		1/7/2015			Completion D	ate:	1/7/2015			
Sample ID:			LT-G-019(2-	4)			Monitoring Action levels		As	Pb
Sample Time:			9:20				Widilitoring Action levels		24ppm	400 ppm
Depth	Advance	Recovery	Graphic Log	USCS Code	Soil	Moisture	Soil Description	As	Pb	Photo Log
(ft)	(ft)	(ft)			Color	Content		(ppm)	(ppm)	T Hoto Log
1 2	2	2		SW-SM	10YR4/2	D	Well graded medium sand with silt and gravel.	ND	ND	
4	2	2				w		ND	61	

					T	TEST PIT LOG	SHEET				
TEST PIT NUMI	BER:	LT-G-019_2		Instrument		Ν	Nodel Number	Serial Number			
GEOLOGIST:		AR		PID:	MiniRae 2000)		110-011167			
HEALTH TECHN	NICIAN:	-		XRF:	Thermo Nitor	1		XL3t 600			
WEATHER:		Partly Sunny 22-32°		SCALER:	-			-			
Excavation Equ	uipment:	Hitachi 350LC Excavat	or		Testpit Area:		5X10				
Sampling Meth	hod:	Composite			Test Pit Depth	า:	4'				
Start Time:		12:35			Completion T	ime:	12:45				
Start Date:		1/14/2015			Completion D	ate:	1/14/2015				
Sample ID:			LT-G-019(2-	4)		1	Monitoring Action levels		As	Pb	
Sample Time:			12:50				Thomas rector levels		24ppm	400 ppm	
Depth	Advance	Recovery	Graphic Log	USCS Code	Soil	Moisture	Soil Description	As	Pb	Photo Log	
(ft)	(ft)	(ft)	0.000000000		Color	Content		(ppm)	(ppm)		
1 2	2	2		SW-SM	10YR4/2	D	Organics, poly, well graded medium sand with silt and gravel.	ND	ND		
4	2	2				W		37	58		

						T	TEST PIT LOG	SHEET				
TEST PIT NUME	BER:	LT-G-022			Instrument		N	Nodel Number	Serial Number			
GEOLOGIST:		AR			PID:	MiniRae 2000)		110-011167			
HEALTH TECHN	IICIAN:	-			XRF:	Thermo Niton		XL3t 600				
WEATHER:		Partly Sunny 22-32°			SCALER:	-			-			
Excavation Equ	ipment:	Hitachi 350LC Excavator				Testpit Area:		5X10				
Sampling Meth	iod:	Composite				Test Pit Depth	ո:	2'				
Start Time:		11:30				Completion T	ime:	11:35				
Start Date:		1/14/2015				Completion D	ate:	1/14/2015				
Sample ID:			LT-G-022(0-2) 11:40				1	Monitoring Action levels		As	Pb	
Sample Time:								World Herein		24ppm	400 ppm	
Depth	Advance	Recovery	Graphic Log USCS Code			Soil	Moisture	Soil Description	As	Pb	Photo Log	
(ft)	(ft)	(ft)				Color	Content		(ppm)	(ppm)	J	
0						10YR4/1	D					
1	2	2			SM	101114/1		Silty sand with gravel.	136	537		
2			SM			10YR3/1 W						

					т	EST PIT LOG S	SHEET				
TEST PIT NUME	BER:	LT-GI-001		Instrument			1odel Number	Serial Number			
GEOLOGIST:		AR		PID:	MiniRae 2000			110-011167			
HEALTH TECHN		-		XRF:	Thermo Nitor			XL3t 600			
WEATHER:		Partly Sunny 22-32°		SCALER:	-			-			
Excavation Equ	ipment:	Hitachi 350LC Excavator			Testpit Area:		5X10				
Sampling Meth		Composite			Test Pit Depth		6'				
Start Time:		12:00			Completion T	ime:	12:20				
Start Date:		1/14/2015			Completion D	ate:	1/14/2015				
Sample ID:			LT-GI-001(4-	-6)			Monitoring Action levels		As	Pb	
Sample Time:			12:25					24ppm	400 ppm		
Depth	Advance	Recovery	Graphic Log	USCS Code	Soil	Moisture	Soil Description	As	Pb	Photo Log	
(ft)	(ft)	(ft)	************		Color	Content		(ppm)	(ppm)		
1 2	2	2			10YR4/1	D	Debris, well graded fine sand with silt	ND	ND		
3	2	2		SW-SM			and gravel.	ND	ND		
5					10YR3/1	W		ND	227		
6	2	2		OL	10YR4/2		Bog	ND	ND		

					T	EST PIT LOG	SHEET				
TEST PIT NUME	BER:	LT-C-003		Instrument		N	Nodel Number			Serial Number	
GEOLOGIST:		AR		PID:	MiniRae 2000)		110-011167			
HEALTH TECHN	IICIAN:	-		XRF:	Thermo Niton		XL3t 600				
WEATHER:		Sunny 18-28°		SCALER:	-			-			
Excavation Equ	ipment:	Hitachi 350LC Excavator			Testpit Area:		5X10				
Sampling Meth	nod:	Composite			Test Pit Depth	າ:	2'				
Start Time:		10:00			Completion T	ime:	10:05				
Start Date:		1/7/2015			Completion D	ate:	1/7/2015				
Sample ID:			LT-C-003(0-2) 10:10				Monitoring Action levels		As	Pb	
Sample Time:						Worthorning Action Tevels		24ppm	400 ppm		
Depth	Advance	Recovery				Moisture	Soil Description	As	Pb	Photo Log	
(ft)	(ft)	(ft)			Color	Content		(ppm)	(ppm)		
0					10YR4/3						
1	2	2		SM	201111,0	D	Silty sand with gravel.	46	26		
2					10YR3/1						

					7	TEST PIT LOG	SHEET				
TEST PIT NUME	BER:	LT-C-024_1		Instrument		N	Nodel Number	Serial Number			
GEOLOGIST:		AR		PID:	MiniRae 2000)		110-01116	57		
HEALTH TECHN	IICIAN:	-		XRF:	Thermo Nitor	า		XL3t 600			
WEATHER:		Sunny 18-28°		SCALER:	-			-			
Excavation Equ	iipment:	Hitachi 350LC Excavato	r		Testpit Area:		5X10				
Sampling Meth	nod:	Composite			Test Pit Depth	n:	4'				
Start Time:		10:45			Completion T	ime:	10:50				
Start Date:		1/7/2015			Completion D	ate:	1/7/2015				
Sample ID:			LT-C-024(2-	4)			Monitoring Action levels		As	Pb	
Sample Time:			10:55				Monitoring Action Icveis		24ppm	400 ppm	
Depth	Advance	Recovery	Graphic Log	USCS Code	Soil	Moisture	Soil Description	As	Pb	Photo Log	
(ft)	(ft)	(ft)	 		Color	Content		(ppm)	(ppm)		
1 2	2	2		SW-SM	10YR4/1	D	Well graded medium sand wiith silt and gravel.	ND	ND		
3	2	2			- 10YR4/3			34	56		
4				SM			Silty sand with gravel				

					7	EST PIT LOG	SHEET				
TEST PIT NUME	BER:	LT-C-024_2		Instrument		N	Nodel Number			Serial Number	
GEOLOGIST:		AR		PID:	MiniRae 2000)		110-01116	57		
HEALTH TECHN	NICIAN:	-		XRF:	Thermo Nitor	1		XL3t 600			
WEATHER:		Partly Sunny 22-32°		SCALER:	-			-			
Excavation Equ	uipment:	Hitachi 350LC Excavato	r		Testpit Area:		5X10				
Sampling Meth	nod:	Composite			Test Pit Depth	ո:	4'				
Start Time:		15:25			Completion T	ime:	15:35				
Start Date:		1/14/2015			Completion D	ate:	1/14/2015				
Sample ID:			LT-C-024(2-	4)			Monitoring Action levels		As	Pb	
Sample Time:			15:40				Widilitoring Action levels		24ppm	400 ppm	
Depth	Advance	Recovery	Graphic Log	USCS Code	Soil	Moisture	Soil Description	As	Pb	Photo Log	
(ft)	(ft)	(ft)			Color	Content		(ppm)	(ppm)	T HOLO LOG	
1	2	2		SW-SM	10YR4/1	D	Well graded medium sand wiith silt and gravel.	ND	ND		
2				3.0 5.0	10YR3/1						
3					10004/2))	Ciltu cand with array	64	225		
4	2	2		SM	- 10YR4/3	W	Silty sand with gravel	61	225		

					Т	EST PIT LOG	SHEET			
TEST PIT NUME	BER:	LT-C-026		Instrument			1odel Number			Serial Number
GEOLOGIST:		AR		PID:	MiniRae 2000			110-01116	57	
HEALTH TECHN	IICIAN:	-		XRF:	Thermo Nitor	1		XL3t 600		
WEATHER:		Sunny 18-28°		SCALER:	-			-		
Excavation Equ	uipment:	Hitachi 350LC Excava	tor		Testpit Area:		5X10			
Sampling Meth		Composite			Test Pit Depth	າ:	8'			
Start Time:		11:15			Completion T	ime:	11:30			
Start Date:		1/7/2015			Completion D		1/7/2015			
Sample ID:			LT-C-026(6-	8)			Manitorius Astion Israela		As	Pb
Sample Time:			11:35				Monitoring Action levels		24ppm	400 ppm
Depth (ft)	Advance (ft)	Recovery (ft)	Graphic Log	USCS Code	Soil Color	Moisture Content	Soil Description	As (ppm)	Pb (ppm)	Photo Log
0										
2	2	2						ND	ND	
4	2	2		GC	10YR4/2	D	RCA, gravelly sand	ND	ND	
5	2	2						ND	ND	
6	_									
7	2	2				\\\\		ND	49	
8	2	2		CL	10YR6/1	W 1	Clay	ND	4 3	

					7	EST PIT LOG S	SHEET					
TEST PIT NUMI	BER:	LT-C-035		Instrument		N	Nodel Number	Serial Number				
GEOLOGIST:		AR		PID:	MiniRae 2000)		110-011167				
HEALTH TECHN	NICIAN:	-		XRF:	Thermo Nitor	1		XL3t 600				
WEATHER:		Sunny 18-28°		SCALER:	-			-				
Excavation Equ	ıipment:	Hitachi 350LC Excavator			Testpit Area:		5X10					
Sampling Meth	nod:	Composite			Test Pit Depth	ղ։	6'					
Start Time:		11:50			Completion T		12:00					
Start Date:		1/7/2015			Completion D		1/7/2015					
Sample ID:			LT-C-035(4-	6)			Monitoring Action levels		As	Pb		
Sample Time:			12:05				Worldoning Action levels		24ppm	400 ppm		
Depth	Advance	Recovery	Graphic Log	USCS Code	Soil	Moisture	Soil Description	As	Pb	Dhoto Log		
(ft)	(ft)	(ft)			Color	Content		(ppm)	(ppm)	Photo Log		
1 2	2	2		SW-SM	10YR4/1	D	Organics, well graded medium sand with silt and gravel.	ND	ND			
3	- 2	2						- ND	ND			
5	2	2		SC	- 10YR3/1	W	Gravelly sand Clayey sand	- 44	118			
6		2		CL			Clay					

					T	EST PIT LOG	SHEET				
TEST PIT NUME	BER:	CC-C-022		Instrument		N	Nodel Number	Serial Number			
GEOLOGIST:		AR		PID:	MiniRae 2000)		110-011167			
HEALTH TECHN	IICIAN:	-		XRF:	Thermo Niton	1		XL3t 600			
WEATHER:		Snow 19-32°		SCALER:	-			-			
Excavation Equ	ipment:	Hitachi 270LC Excavator			Testpit Area:		5X10				
Sampling Meth	nod:	Composite			Test Pit Depth	າ:	2'				
Start Time:		8:15					8:20				
Start Date:		1/9/2015	9/2015 CC-C-022(0-2)				1/9/2015				
Sample ID:			CC-C-022(0-2) 8:25				Monitoring Action levels		As	Pb	
Sample Time:						Monitoring Netion levels		24ppm	400 ppm		
Depth	Advance	Recovery				Moisture	Soil Description	As	Pb	Photo Log	
(ft)	(ft)	(ft)			Color	Content		(ppm)	(ppm)		
0					10VR4/1						
1	2	2		SW-SM	10YR4/1	D	Debris, well graded fine-medium sand with silt and gravel.	49	333		
2					10YR3/1						

					T	EST PIT LOG	SHEET				
TEST PIT NUME	BER:	CC-C-019		Instrument		N	Nodel Number	Serial Number			
GEOLOGIST:		AR		PID:	MiniRae 2000)		110-01116	57		
HEALTH TECHN	IICIAN:	-		XRF:	Thermo Niton	1		XL3t 600			
WEATHER:		Snow 19-32°		SCALER:	-		-				
Excavation Equ	ipment:	Hitachi 270LC Excavator			Testpit Area:		5X10				
Sampling Meth	nod:	Composite			Test Pit Depth	n:	2'				
Start Time:		8:35					e: 8:40				
Start Date:		1/9/2015	⁷ 9/2015 CC-C-019(0-2)				1/9/2015				
Sample ID:			CC-C-019(0-2) 8:45				Monitoring Action levels		As	Pb	
Sample Time:						The manual management of the m		24ppm	400 ppm		
Depth	Advance	Recovery	Graphic Log	USCS Code	Soil	Moisture	Soil Description	As	Pb	Photo Log	
(ft)	(ft)	(ft)			Color	Content		(ppm)	(ppm)		
0					10YR4/1						
1	2	2		SM	101111111	D	Orange fencing, silty sand with gravel.	684	336		
2					10YR3/1						

					Т	EST PIT LOG	SHEET																		
TEST PIT NUME	BER:	CC-C-023_1		Instrument			lodel Number			Serial Number															
GEOLOGIST:		AR		PID:	MiniRae 2000			110-01116																	
HEALTH TECHN	IICIAN:	-		XRF:	Thermo Niton			XL3t 600																	
WEATHER:		Snow 19-32°		SCALER:	-			-																	
Excavation Equ	ıipment:	Hitachi 350LC Excavato			Testpit Area:		5X10																		
Sampling Meth		Composite			Test Pit Depth		8'																		
Start Time:		8:55			Completion Time: 9:05																				
Start Date:		1/9/2015			Completion Date: 1/9/2015																				
Sample ID:			CC-C-023(6-	-8)					As	Pb															
Sample Time:			9:10		Monitoring Action levels				24ppm	400 ppm															
Depth	Advance	Recovery	Graphic Log	USCS Code	Soil	Soil Moisture Soil Description			Pb	Photo Log															
(ft)	(ft)	(ft)			Color	Content		(ppm)	(ppm)	Photo Log															
1	2	2		SM	10YR3/2		Orange fencing, silty sand with gravel	6	126																
2				SC			Clayey sand with Gravel																		
3	2	2				D		- 28	197																
4																		_							
5	2	2			10YR3/1			ND	272																
6		2		SM			Silty sand with gravel																		
7	2	2						61	210																
8	2						01	210																	

						TEST PIT LOG	SHEET				
TEST PIT NUME	BER:	CC-C-023_2		Instrument			Nodel Number	Serial Number			
GEOLOGIST:		AR		PID:	MiniRae 2000			110-011167			
HEALTH TECHN	NICIAN:	-		XRF:	Thermo Nitor	١		XL3t 600			
WEATHER:		Partly Sunny 19-34°		SCALER:	-			-			
Excavation Equ	uipment:	Hitachi 270LC Excavato	or		Testpit Area:		5X10				
Sampling Meth	hod:	Composite			Test Pit Depth	า:	8'				
Start Time:		8:40			Completion Time: 9:00						
Start Date:		1/15/2015			Completion D	ate:	1/15/2015				
Sample ID:			CC-C-023(6	5-8)			Monitoring Action levels		As	Pb	
Sample Time:			9:05				World Tevels		24ppm	400 ppm	
Depth	Advance	Recovery	Graphic Log	USCS Code	Soil	Moisture Soil Description As			Pb	Photo Log	
(ft)	(ft)	(ft)			Color	Content		(ppm)	(ppm)	1 11010 205	
1	2	2		SM	10YR4/2		Orange fencing, silty sand with gravel	NM	NM		
2				sc			Clayey sand with Gravel				
3	- 2	2				D /1		- NM NM	NM		
4					10YR3/1						
5	2	2							NM		
6				SM			Silty sand with gravel				
7	- 2	2			10YR5/1	M		ND	566		
8					·		IVI				

					1	TEST PIT LOG	SHEET				
TEST PIT NUME	BER:	CC-C-028_1		Instrument		N	Nodel Number	Serial Number			
GEOLOGIST:		AR		PID:	MiniRae 2000)		110-011167			
HEALTH TECHN	IICIAN:	-		XRF:	Thermo Nitor	1		XL3t 600			
WEATHER:		Snow 19-32°		SCALER:	-			-			
Excavation Equ	ipment:	Hitachi 270LC Excavator			Testpit Area:		5X10				
Sampling Meth	od:	Composite			Test Pit Depth	ո։	2'				
Start Time:		9:20			Completion T	ime:	9:25				
Start Date:		1/9/2015			Completion D	ate:	1/9/2015				
Sample ID:			CC-C-028(0	-2)			Monitoring Action levels		As	Pb	
Sample Time:			9:30				World Netion levels		24ppm	400 ppm	
Depth	Advance	Recovery	Graphic Log	USCS Code	Soil	Moisture	Soil Description	As	Pb	Photo Log	
(ft)	(ft)	(ft)			Color	Content		(ppm)	(ppm)		
0				SM	10YR4/1		Fabric, silty sand with gravel.				
1	2	2		Sivi	10114/1	D	Tablic, silly sailu with graver.	41	60		
2				SC	10YR5/1		Clayey sand with gravel.				

					1	TEST PIT LOG	SHEET				
TEST PIT NUME	BER:	CC-C-028_2		Instrument		N	Model Number	Serial Number			
GEOLOGIST:		AR		PID:	MiniRae 2000)		110-01116	67		
HEALTH TECHN	IICIAN:	-		XRF:	Thermo Nitor	า		XL3t 600			
WEATHER:		Partly Sunny 19-34°		SCALER:	-			-			
Excavation Equ	ipment:	Hitachi 270LC Excavator			Testpit Area:		5X10				
Sampling Meth	nod:	Composite			Test Pit Deptl	h:	2'				
Start Time:		9:20			Completion T	ime:	9:25				
Start Date:		1/15/2015			Completion D	ate:	1/15/2015				
Sample ID:			CC-C-028(0	-2)			Monitoring Action levels		As	Pb	
Sample Time:			9:30				Worldfing Action levels		24ppm	400 ppm	
Depth	Advance	Recovery	Graphic Log	USCS Code	Soil	Moisture	Soil Description	As	Pb	Photo Log	
(ft)	(ft)	(ft)			Color	Content		(ppm)	(ppm)		
0				SM	10YR4/1		Silty sand with gravel.				
1	2	2		Sivi	10184/1	D	Siity Sand With gravei.	50	70		
2				SC	10YR5/1		Clayey sand.				

				7	FST PIT LOG	OG SHEET						
TEST PIT NUMB	BER:	CC-C-029_1			Instrument	Model Number			Serial Number			
GEOLOGIST:		AR				MiniRae 2000			110-011167			
HEALTH TECHN	IICIAN:	-			XRF:	Thermo Nitor			XL3t 600			
WEATHER:		Snow 19-32°			SCALER:	-			-			
Excavation Equ	ipment:	Hitachi 350LC Excavator	r			Testpit Area:		5X10				
Sampling Meth		Composite				Test Pit Depth	ո։	10'				
Start Time:		9:35				Completion Time: 9:45						
Start Date:		1/9/2015				Completion D	ate:	1/9/2015				
Sample ID:			CC-C-02	9(8-1	10)			Monitoring Action levels		As	Pb	
Sample Time:			9:5	50	T	T				24ppm	400 ppm	
Depth (ft)	Advance (ft)	Recovery (ft)	Graphic L	Log	USCS Code	Soil Color	Moisture Content	Soil Description	As (ppm)	Pb (ppm)	Photo Log	
1 2	2	2				10YR3/2	D	Silty sand with gravel.	ND	87		
4	2	2			SM		W	Wood, wires, silty sand with gravel.	5	101		
5 6	2	2				10YR3/1			18	26		
8	2	2				10YR4/1	D		ND	93		
9	2	2			SC	10YR5/1		Clayey sand with gravel.	ND	111		

						7	TEST PIT LOG	SHEET			
TEST PIT NUME	BER:	CC-C-029_2		In	strument	<u>.</u>		Model Number	Serial Number		
GEOLOGIST:		AR			ID:	MiniRae 2000			110-011167		
HEALTH TECHN	NICIAN:	-			RF:	Thermo Nitor			XL3t 600		
WEATHER:		Partly Sunny 19-34°			CALER:	-			-		
Excavation Equ	uipment:	Hitachi 270LC Excavator	r			Testpit Area: 5X10					
Sampling Meth	nod:	Composite				Test Pit Depth: 10'					
Start Time:		9:40				Completion Time: 10:00					
Start Date:		1/15/2015				Completion D	oate:	1/15/2015			
Sample ID:			CC-C-029	9(8-10))		_	Monitoring Action levels		As	Pb
Sample Time:	 		10:0)5		T	<u> </u>	<u> </u>		24ppm	400 ppm
Depth (ft)	Advance (ft)	Recovery (ft)	Graphic Lo	og	USCS Code	Soil Color	Moisture Content	Soil Description	As (ppm)	Pb (ppm)	Photo Log
1 2	2	2				10YR3/2	D	Silty sand with gravel.	NM	NM	
4	2	2			SM		W		NM	NM	
5 6	2	2				10YR3/1		Wood, wires, silty sand with gravel.	NM	NM	
7	- 2	2				10YR4/1	D		NM	NM	
10	2	2			SC	10YR3/1		Debris, clayey sand with gravel.	ND	549	

						EST DIT LOG	ST PIT LOG SHEET				
TEST PIT NUME	RFR·	CC-C-030_1		Instrument	<u> </u>		lodel Number			Serial Number	
GEOLOGIST:	DEIV.	AR			MiniRae 2000			110-01116		Seriai Nullipei	
HEALTH TECHN	IICIAN:	An) / 		
WEATHER:		Snow 19-32°		XRF: SCALER:	Thermo Niton			XL3t 600 -			
Excavation Equ		Hitachi 350LC Excavator		JCALLIN.	Testpit Area:		5X10	1			
Sampling Meth		Composite			Test Pit Depth		10'				
Start Time:	100.	10:45			Completion Ti		11:00				
Start Date:		1/9/2015			Completion D		1/9/2015				
Sample ID:		1/3/2013	CC-C-030(8-:		completion b				As	Pb	
Sample Time:			11:05	10)			Monitoring Action levels		24ppm	400 ppm	
Depth	Advance	Recovery	Graphic Log	USCS Code	Soil	Moisture	Soil Description	As	Pb		
(ft)	(ft)	(ft)	Grapine Log	OSCS COUC	Color	Content	Jon Description	(ppm)	(ppm)	Photo Log	
1	2	2		SM	10YR4/1	Content	Silty sand with gravel.	ND ND	87		
4	2	2		SW-SM	10YR3/1		Well graded fine sand with silt and gravel.	ND	180		
6	2	2		SM	10YR4/1	D	Silty sand with gravel, some cobbles.	ND	100		
7	2	2		CL	10YR5/1		Clay with gravel.	ND	00		
8	2	2						- ND	98		
9	2	2		SW	10YR4/3		Well graded medium sand	ND	123		
10		_									

					т	EST PIT LOG S	SHFFT				
TEST PIT NUME	BFR:	CC-C-030_2		Instrument	1.		odel Number	Serial Number			
GEOLOGIST:		AR			MiniRae 2000		ouel Walliber	110-011167			
HEALTH TECHN		-			Thermo Niton			XL3t 600	•		
WEATHER:		Partly Sunny 19-34°		SCALER:	-			-			
Excavation Equ		Hitachi 270LC Excavator			Testpit Area:	5X10		<u> </u>			
Sampling Meth		Composite					10'				
Start Time:	· · · · · · · · · · · · · · · · · · ·	10:20			Completion Tin		10:40				
Start Date:		1/15/2015			Completion Da		1/15/2015				
Sample ID:		CC-C-030(8		CC-C-0	0(10)			As Pb			
Sample Time:		11:25	,		:30		Monitoring Action levels		24ppm	400 ppm	
Depth	Advance	Recovery	Graphic Log	USCS Code	Soil	Moisture	Soil Description	As	Pb	District control	
(ft)	(ft)	(ft)			Color	Content	·	(ppm)	(ppm)	Photo Log	
0											
1	2	2		SM	10YR4/1		Silty sand with gravel.	NM	NM		
2											
3	2	2		SW-SM	10YR3/1		Well graded fine sand with silt and	NM	NM		
4	_	_		3W 3W	101113/1		gravel.				
5	2	2		SM	10YR4/4	D	Silty sand with gravel, some cobbles.	NM	NM		
6	_	_	Щ	5.11	2011.17		Sitey Suita With graver, Some coobless.				
7	2	2		CL	10YR5/1		Clay with gravel.	· NM	NM		
8	2	2			10YR4/4			14141	INIVI		
9	2	2		SW			Debris, well graded medium sand	ND	568		
10	_	_			10YR2/1			1,542	46,200		



APPENDIX B

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THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Buffalo 10 Hazelwood Drive Amherst, NY 14228-2298 Tel: (716)691-2600

TestAmerica Job ID: 480-73951-2

Client Project/Site: Glen Isle: Data Gap Field Program

For:

Posillico Consulting 1750 New Highway Farmingdale, New York 11735

Attn: Ellis Koch

Authorized for release by: 1/19/2015 5:07:59 PM

John Schove, Project Manager II (716)504-9838

john.schove@testamericainc.com

·····LINKS ······

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Have a Question?



Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Client: Posillico Consulting Project/Site: Glen Isle: Data Gap Field Program TestAmerica Job ID: 480-73951-2

Table of Contents

Cover Page	1
Table of Contents	2
Definitions/Glossary	3
Case Narrative	4
Detection Summary	5
Client Sample Results	6
QC Sample Results	9
QC Association Summary	10
Lab Chronicle	11
Certification Summary	12
Method Summary	13
Sample Summary	14
Chain of Custody	15
Receipt Checklists	17

10

12

Definitions/Glossary

Client: Posillico Consulting

Project/Site: Glen Isle: Data Gap Field Program

Toxicity Equivalent Quotient (Dioxin)

TestAmerica Job ID: 480-73951-2

Qualifiers

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

Glossary

TEQ

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)

Case Narrative

Client: Posillico Consulting

Project/Site: Glen Isle: Data Gap Field Program

TestAmerica Job ID: 480-73951-2

Job ID: 480-73951-2

Laboratory: TestAmerica Buffalo

Narrative

Job Narrative 480-73951-2

Comments

No additional comments.

Receipt

The samples were received on 1/10/2015 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.1° C.

Metals

Method(s) 6010C: The following sample(s) was diluted due to the presence of Molybdenum which interferes with Arsenic: (480-73951-6 MS), (480-73951-6 MSD), (480-73951-6 PDS), (480-73951-6 SD), LT-C-035 (4-6) (480-73951-6). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

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Detection Summary

Client: Posillico Consulting

Project/Site: Glen Isle: Data Gap Field Program

TestAmerica Job ID: 480-73951-2

Client Sample ID: LT-C-035 (4-6) Lab Sample ID: 480-73951-6

Result Qualifier MDL Unit Dil Fac D Method Analyte RL Prep Type 6010C 0.20 0.15 0.056 mg/L 10 SPLP East Arsenic

Lab Sample ID: 480-73951-7 Client Sample ID: CC-C-022 (0-2)

Result Qualifier RL MDL Unit Dil Fac D Method **Prep Type** Arsenic 0.0059 J 0.015 0.0056 mg/L 6010C SPLP East

Client Sample ID: CC-C-019 (0-2) Lab Sample ID: 480-73951-8

Analyte Result Qualifier RL MDL Unit Dil Fac D Method Prep Type Arsenic 0.36 0.015 0.0056 mg/L 6010C SPLP East

Client: Posillico Consulting TestAmerica Job ID: 480-73951-2

Project/Site: Glen Isle: Data Gap Field Program

Client Sample ID: LT-C-035 (4-6)

Date Collected: 01/07/15 12:05

Lab Sample ID: 480-73951-6

Matrix: Solid

Date Received: 01/10/15 09:00

Method: 6010C - Metals (ICP) - SPLP East										
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepa	ared	Analyzed	Dil Fac
Arsenic	0.20		0.15	0.056	mg/L		01/15/15	5 11:00	01/19/15 11:25	10

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Client: Posillico Consulting

Project/Site: Glen Isle: Data Gap Field Program

TestAmerica Job ID: 480-73951-2

Client Sample ID: CC-C-022 (0-2)

Lab Sample ID: 480-73951-7 Date Collected: 01/09/15 08:25 Matrix: Solid

Date Received: 01/10/15 09:00

Method: 6010C - Metals (ICP) - SPLP East Analyte Result Qualifier RLMDL Unit D Analyzed Dil Fac Prepared Arsenic 0.0059 J 0.015 0.0056 mg/L 01/15/15 11:00 01/16/15 21:31

Client: Posillico Consulting TestAmerica Job ID: 480-73951-2

Project/Site: Glen Isle: Data Gap Field Program

Client Sample ID: CC-C-019 (0-2)

Lab Sample ID: 480-73951-8

Date Collected: 01/09/15 08:45 Matrix: Solid

Date Received: 01/10/15 09:00

Method: 6010C - Metals (ICP) - SPLP East									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsonic	0.36		0.015	0.0056	ma/L		01/15/15 11:00	01/16/15 21:41	

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TestAmerica Job ID: 480-73951-2

Prep Type: SPLP East

Prep Batch: 223090

Project/Site: Glen Isle: Data Gap Field Program

Method: 6010C - Metals (ICP)

Client: Posillico Consulting

Lab Sample ID: MB 480-223090/2-A Client Sample ID: Method Blank

Matrix: Solid

Prep Type: Total/NA Analysis Batch: 223387 Prep Batch: 223090

мв мв

Result Qualifier RL MDL Unit Analyte D Prepared Analyzed Dil Fac 0.015 0.0056 mg/L 01/15/15 11:00 01/16/15 21:12 Arsenic 0.015 U

Lab Sample ID: LCS 480-223090/3-A Client Sample ID: Lab Control Sample **Matrix: Solid** Prep Type: Total/NA **Prep Batch: 223090** Analysis Batch: 223387

LCS LCS Spike Added Analyte Result Qualifier Unit %Rec Limits Arsenic 1.00 0.937 mg/L 94 80 - 120

Lab Sample ID: LB 480-222886/1-B Client Sample ID: Method Blank

Matrix: Solid Analysis Batch: 223387

LB LB Analyte Result Qualifier RL MDL Unit Prepared Analyzed Dil Fac

Arsenic 0.015 U 0.015 0.0056 mg/L 01/15/15 11:00 01/16/15 21:09

Lab Sample ID: 480-73951-6 MS Client Sample ID: LT-C-035 (4-6) **Prep Type: SPLP East Matrix: Solid**

Analysis Batch: 223465 Prep Batch: 223090

Sample Sample Spike MS MS %Rec. Analyte Result Qualifier Added Result Qualifier Unit %Rec Limits 0.20 1.00 Arsenic 1.18 mg/L 99 75 - 125

Lab Sample ID: 480-73951-6 MSD Client Sample ID: LT-C-035 (4-6)

Matrix: Solid Prep Type: SPLP East Analysis Batch: 223465 Prep Batch: 223090

Sample Sample Spike MSD MSD %Rec. **RPD** Result Qualifier Added Limit Analyte Result Qualifier Unit %Rec Limits RPD 0.20 1.00 Arsenic 1.18 mg/L 99 75 - 125 20

QC Association Summary

Client: Posillico Consulting

Project/Site: Glen Isle: Data Gap Field Program

TestAmerica Job ID: 480-73951-2

Metals

Leach Batch: 222886

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-73951-6	LT-C-035 (4-6)	SPLP East	Solid	1312	
480-73951-6 MS	LT-C-035 (4-6)	SPLP East	Solid	1312	
480-73951-6 MSD	LT-C-035 (4-6)	SPLP East	Solid	1312	
480-73951-7	CC-C-022 (0-2)	SPLP East	Solid	1312	
480-73951-8	CC-C-019 (0-2)	SPLP East	Solid	1312	
LB 480-222886/1-B	Method Blank	SPLP East	Solid	1312	

Prep Batch: 223090

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-73951-6	LT-C-035 (4-6)	SPLP East	Solid	3010A	222886
480-73951-6 MS	LT-C-035 (4-6)	SPLP East	Solid	3010A	222886
480-73951-6 MSD	LT-C-035 (4-6)	SPLP East	Solid	3010A	222886
480-73951-7	CC-C-022 (0-2)	SPLP East	Solid	3010A	222886
480-73951-8	CC-C-019 (0-2)	SPLP East	Solid	3010A	222886
LB 480-222886/1-B	Method Blank	SPLP East	Solid	3010A	222886
LCS 480-223090/3-A	Lab Control Sample	Total/NA	Solid	3010A	
MB 480-223090/2-A	Method Blank	Total/NA	Solid	3010A	

Analysis Batch: 223387

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-73951-7	CC-C-022 (0-2)	SPLP East	Solid	6010C	223090
480-73951-8	CC-C-019 (0-2)	SPLP East	Solid	6010C	223090
LB 480-222886/1-B	Method Blank	SPLP East	Solid	6010C	223090
LCS 480-223090/3-A	Lab Control Sample	Total/NA	Solid	6010C	223090
MB 480-223090/2-A	Method Blank	Total/NA	Solid	6010C	223090

Analysis Batch: 223465

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-73951-6	LT-C-035 (4-6)	SPLP East	Solid	6010C	223090
480-73951-6 MS	LT-C-035 (4-6)	SPLP East	Solid	6010C	223090
480-73951-6 MSD	LT-C-035 (4-6)	SPLP East	Solid	6010C	223090

TestAmerica Buffalo

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Lab Chronicle

Client: Posillico Consulting

Project/Site: Glen Isle: Data Gap Field Program

TestAmerica Job ID: 480-73951-2

Lab Sample ID: 480-73951-6

ib cample ib. 400-75551-0

Matrix: Solid

Client Sample ID: LT-C-035 (4-6)
Date Collected: 01/07/15 12:05

Date Received: 01/10/15 09:00

Batch Ba

	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
SPLP East	Leach	1312			222886	01/14/15 09:09	MRB	TAL BUF
SPLP East	Prep	3010A			223090	01/15/15 11:00	KJ1	TAL BUF
SPLP East	Analysis	6010C		10	223465	01/19/15 11:25	TRB	TAL BUF

Client Sample ID: CC-C-022 (0-2)

Lab Sample ID: 480-73951-7

Date Collected: 01/09/15 08:25 Matrix: Solid

Date Received: 01/10/15 09:00

	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
SPLP East	Leach	1312			222886	01/14/15 09:09	MRB	TAL BUF
SPLP East	Prep	3010A			223090	01/15/15 11:00	KJ1	TAL BUF
SPLP East	Analysis	6010C		1	223387	01/16/15 21:31	TRB	TAL BUF

Client Sample ID: CC-C-019 (0-2)

Lab Sample ID: 480-73951-8

Date Collected: 01/09/15 08:45 Matrix: Solid

Date Received: 01/10/15 09:00

	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
SPLP East	Leach	1312			222886	01/14/15 09:09	MRB	TAL BUF
SPLP East	Prep	3010A			223090	01/15/15 11:00	KJ1	TAL BUF
SPLP East	Analysis	6010C		1	223387	01/16/15 21:41	TRB	TAL BUF

Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

TestAmerica Buffalo

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Certification Summary

Client: Posillico Consulting

Project/Site: Glen Isle: Data Gap Field Program

TestAmerica Job ID: 480-73951-2

Laboratory: TestAmerica Buffalo

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program		EPA Region	Certification ID	Expiration Date
New York	NELAP		2	10026	03-31-15
Analysis Method	Prep Method	Matrix	Analyt	е	

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Method Summary

Client: Posillico Consulting

Project/Site: Glen Isle: Data Gap Field Program

TestAmerica Job ID: 480-73951-2

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	TAL BUF

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

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Sample Summary

Client: Posillico Consulting

Project/Site: Glen Isle: Data Gap Field Program

TestAmerica Job ID: 480-73951-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-73951-6	LT-C-035 (4-6)	Solid	01/07/15 12:05	01/10/15 09:00
480-73951-7	CC-C-022 (0-2)	Solid	01/09/15 08:25	01/10/15 09:00
480-73951-8	CC-C-019 (0-2)	Solid	01/09/15 08:45	01/10/15 09:00

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777 New Durham Road Edison, New Jersey 08817 Phone: (732) 549-3900 Fax: (732) 549-3679

TestAmerico

CHAIN OF CUSTODY / ANALYSIS REQUEST

LAB USE ONLY Project No: GIONITSU WORKSAMPH REGENEROPMENT Sample Numbers Job No: 480-73951 Chain of Custody ANALYSIS REQUESTED (ENTER "X: BELOW TO INDICATE REQUEST) Site/Project Identification State (Location of site): Regulatory Program: 2A 9J92 (CCP P6 (1311) Amanda J. Racaniello P.O.# Soil: Water: Samplers Name (Printed) No. of. Matrix | Cont. Rush Charges Authorized For: Other THE 2 Week 24 H Analysis Turnaround Time NESO Soil Standard Preservation Used: 1 = ICE, 2 = HCI, $3 = H_2SO_4$, $4 = HNO_3$, 5 = NaOH1 Week 0760 0875 0845 100 Time 1/1/15/1205 17/15/1005 17/15/1135 17115 1913 1915 9 M915 7 = OtherRx R-Glen Isle Partners, THE LEADER IN ENVIRONMENTAL TESTING 625 RVR Plaza (9-4-1 (S) (8-9) (2-0 2-03 J-C-024 (2-4) Sample Identification Oity Uniondale, N.K. J-C-003 (0-2) 6 = Other lame (for report and invoice) C-056 1-(-026) 1010-2-C-03K C-C-055 EIIISKOCH Phone

TAL - 0016 (0814) Company 1 A 01/10/150900 Laboratory Certifications: New Jersey (12028), New York (11452), Pennsylvania (68-522), Connecticut (PH-0200), Rhode Island (132) Company Company Special Instructions Run' Totals" first Wily ALD SPAP TOUR IF TOTALS Are suskeded Received by Received by 3 8 01-09-15 117:00 Date / Time PMG Sompany Company Relinquished by Relinquished by

Water Metals Filtered (Yes/No)?

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Massachusetts (M-NJ312), North Carolina (No. 578)

777 New Durham Road Edison, New Jersey 08817 Phone: (732) 549-3900 Fax: (732) 549-3679

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

CHAIN OF CUSTODY / ANALYSIS REQUEST

Sample Identification	Name (for report and invoice)	Samplers Name (Printed)	Site/Project Identification	Moberny, Rediviolarment
Sample Identification Sig POTPUCK Company Sample Identification Sample Identification Date Time Matrix Cont. A A A A A A A A A	Coppgany			NJ: NY: X Other:
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Sample identification State Pain Chapter Pa	Address	Analysis Turnaround Time	ANALYSIS REQUESTED	REQUEST) LAB USE ONLY
Sample identification State Rush Charges Annimal For Sample identification Pax 1 (14 2	625 KKR Plaza		(1)	Project No:
Sample Identification Date Time Matrix Conf. 12 25 25 25 25 25 25 25	1 Son Son Son Son	^	دا) ه),	Job No:
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Sample Identification Date Time Matrix Cont. P P P P P P P P P			9-	
8-C-C-O29(8-10) 米 1/9(1/5 1105	Sample Identification	Time Matrix Cont.	107 16T	Sample Numbers
CC - C - C3 C(8 - 10)	*	1:35 (BAC) S1		30.00 TO 10.00 TO 10.
eservation Used: 1 = ICE, 2 = HCI, 3 = H ₂ SO ₄ , 4 = HNO ₂ , 5 = NaOH Soil: 6 = Other	* (1105		
eservation Used: 1 = ICE, 2 = HCI, 3 = H ₂ SO ₄ , 4 = HNO ₃ , 5 = NaOH Soli: 6 = Other 7 = Other Nater: 8 = Other 7 = Other Nater: 1 9 Soli: 2 9 Soli: 3 Soli: 2 9 Soli: 3 Soli: 4 Soli: 5 Soli: 6 Soli: 6 Soli: 7 Soli: 8 Soli: 9 Soli: 9 Soli: 9 Soli: 9 Soli: 9 Soli: 9 S				
eservation used: 1 = ICE, 2 = HCI, 3 = H ₂ SO ₃ . 4 = HNO ₃ 5 = NaOH Soil: 6 = Other				
eservation Used: 1= ICE, 2= HCI, 3= H ₂ SO ₄ , 4= HNO ₉ , 5 = NaOH Soil: 6 = Other Company MARKING LOCAL Soil: Received by Company Date / Time Received by Company Company Date / Time Received by Company Company Company				
eservation Used: 1= ICE, 2= HCI, 3= H ₂ SO ₄ , 4= HNO ₃ , 5= NaOH Soli: 6 = Other			1	
eservation Used: 1 = ICE, 2 = HCI, 3 = H ₂ SO ₄ , 4 = HNO ₃ , 5 = NaOH Soil: 6 = Other, 7 = Other, 7 = Other, 8 = NaOH Soil: 8 = Other, 7 = Other, 8 = NaOH Soil: 9 = Other, 7 = Other, 8 = NaOH Soil: 9 = Other, 7 = Other, 8 = NaOH Soil: 9 = Other, 7 = Other, 8 = NaOH Soil: 9 = Other, 7 = Other, 8 = NaOH Soil: 9 = Other, 7 = Other, 8 = NaOH Soil: 10 = Other, 7 = Other, 8 = NaOH Soil: 11 = Other, 7 = Other, 8 = NaOH Soil: 12 = Other, 7 = Other, 8 = NaOH Soil: 13 = Other, 7 = Other, 8 = NaOH Soil: 14 = Other, 7 = Other, 8 = NaOH Soil: 15 = Other, 7 = Other, 8 = NaOH Soil: 16 = Other, 7 = Other, 8 = NaOH Soil: 17 = Other, 8 = NaOH Soil: 18 = Other, 8 = NaOH Soil: 18 = Other, 9 = NaOH Soil: 19 = Other, 9 = NaOH Soil: 10 = Other, 9 = NaOH Soil: 10 = Other, 9 = NaOH Soil: 10 = Other, 9 = NaOH Soil: 11 = Other, 9 = NaOH Soil: 12 = Other, 9 = NaOH Soil: 13 = Other, 9 = NaOH Soil: 13 = Other, 9 = NaOH Soil: 14 = Other, 9 = NaOH Soil: 15 = Other, 9 = NaOH Soil: 16 = Other, 9 = NaOH Soil: 17 = Other, 9 = NaOH Soil: 18 = Other			TH M H/1	
eservation Used: 1 = ICE, 2 = HCI, 3 = H ₂ SO ₄ , 4 = HNO ₃ , 5 = NaOH Soil: 6 = Other , 7 = Other				
eservation Used: 1 = ICE, 2 = HCI, 3 = H ₂ SO ₄ , 4 = HNO ₃ , 5 = NaOH Soil: 6 = Other				/
eservation Used: 1 = ICE, 2 = HCI, 3 = H ₂ SO ₄ , 4 = HNO ₅ , 5 = NaOH Becial Instructions X Run' Total " First, Only run Total if Totals are liminguished by Received by Company Company Company Company Company Company Company Date / Time Beceived by Company Date / Time Beceived by Company Company Date / Time Beceived by Company Company Company Company Date / Time Beceived by Company Company Company Company Company				
becial Instructions X Run' Tokol " first, Only run TCUP if Tokol cure dexected, water Metals Falinquished by Company Date / I me Received by Company Company	Preservation Used: $1 = ICE$, $2 = HCI$, $3 = H_2SO_4$,	HNO ₃ 5 = NaOH		
pecial Instructions X Run Tokoi " ficst. Only run TCUP if Tokolls are detected, water Metals Fallinguished by Company Date / Time Received by Company Company	,			
Many Rough Company Date / Time Received by Company Company	Special Instructions K Run Total " fic	. 4	TOTAL are decred,	Water Metals Filtered (Yes/No)?
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Massachusetts (M-NJ312), North Carolina (No. 578)

Login Sample Receipt Checklist

Client: Posillico Consulting

Job Number: 480-73951-2

Login Number: 73951 List Source: TestAmerica Buffalo

List Number: 1 Creator: Kolb, Chris M

orditori really office in		
Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	PWGC
Samples received within 48 hours of sampling.	False	
Samples requiring field filtration have been filtered in the field.	True	
Chlorine Residual checked.	N/A	

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THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Buffalo 10 Hazelwood Drive Amherst, NY 14228-2298 Tel: (716)691-2600

TestAmerica Job ID: 480-74220-1

Client Project/Site: Glen Isle: Data Gap Field Program

For:

Posillico Consulting 1750 New Highway Farmingdale, New York 11735

Attn: Ellis Koch

J.

Authorized for release by: 1/16/2015 4:11:39 PM Rebecca Jones, Project Management Assistant I rebecca.jones@testamericainc.com

Designee for

John Schove, Project Manager II (716)504-9838

john.schove@testamericainc.com

..... Links

Review your project results through

Total Access

Have a Question?



Visit us at:www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Cover Page	1
Table of Contents	2
Definitions/Glossary	3
Case Narrative	4
Detection Summary	5
Client Sample Results	6
QC Sample Results	8
QC Association Summary	9
Lab Chronicle	10
Certification Summary	11
Method Summary	12
Sample Summary	13
Chain of Custody	14
Receipt Checklists	15

Definitions/Glossary

Client: Posillico Consulting

Project/Site: Glen Isle: Data Gap Field Program

TestAmerica Job ID: 480-74220-1

Qualifiers

Metals

Qualifier	Qualifier Description	
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not	
F2	applicable. MS/MSD RPD exceeds control limits	
U	Indicates the analyte was analyzed for but not detected.	

Glossary

RPD

TEF

TEQ

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)

Relative Percent Difference, a measure of the relative difference between two points

Toxicity Equivalent Factor (Dioxin)

Toxicity Equivalent Quotient (Dioxin)

TestAmerica Buffalo

Case Narrative

Client: Posillico Consulting

Project/Site: Glen Isle: Data Gap Field Program

TestAmerica Job ID: 480-74220-1

Job ID: 480-74220-1

Laboratory: TestAmerica Buffalo

Narrative

Job Narrative 480-74220-1

Comments

No additional comments.

Receipt

The samples were received on 1/15/2015 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 4.0° C.

Metals

Method(s) 6010C: The serial dilution performed for the following sample(s) associated with batch 480-223134 was outside control limits for lead: (480-74220-2 SD). The post spike recovery was compliant so no corrective action is needed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

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Detection Summary

Client: Posillico Consulting

Project/Site: Glen Isle: Data Gap Field Program

Client Sample ID: LT-G-022 (0-2)

TestAmerica Job ID: 480-74220-1

Lab Sample ID: 480-74220-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	76.6		2.3	0.47	mg/Kg	1	#	6010C	Total/NA
Lead	285		1.2	0.28	mg/Kg	1	₩	6010C	Total/NA

Client Sample ID: LT-GI-001 (4-6)	Lab Sample ID: 480-74220-2
-----------------------------------	----------------------------

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	3/11		11	0.27	ma/Ka		#	60100	Total/NIA

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Client: Posillico Consulting

Project/Site: Glen Isle: Data Gap Field Program

Client Sample ID: LT-G-022 (0-2)

TestAmerica Job ID: 480-74220-1

Lab Sample ID: 480-74220-1

Date Collected: 01/14/15 11:40 Matrix: Solid Date Received: 01/15/15 09:30 Percent Solids: 86.6

Method: 6010C - Metals (ICP)								
Analyte	Result Qu	ualifier RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	76.6	2.3	0.47	mg/Kg		01/15/15 13:49	01/16/15 10:54	1
Lead	285	1.2	0.28	mg/Kg	₽	01/15/15 13:49	01/16/15 10:54	1

Client: Posillico Consulting TestAmerica Job ID: 480-74220-1

Project/Site: Glen Isle: Data Gap Field Program

Client Sample ID: LT-GI-001 (4-6)

Lab Sample ID: 480-74220-2

Date Collected: 01/14/15 12:25 Matrix: Solid Date Received: 01/15/15 09:30 Percent Solids: 88.4

ı	Method: 6010C - Metals (ICP)									
١	Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
l	Lead	341		1.1	0.27	mg/Kg	<u></u>	01/15/15 13:49	01/16/15 10:57	1

QC Sample Results

Client: Posillico Consulting

Project/Site: Glen Isle: Data Gap Field Program

TestAmerica Job ID: 480-74220-1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 480-223134/1-A

Matrix: Solid

Analysis Batch: 223277

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 223134

Analyte	Result	Qualifier	RL M	DL L	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	1.9	U	1.9	38 n	mg/Kg		01/15/15 13:49	01/16/15 10:49	1
Lead	0.96	U	0.96 0.	23 n	mg/Kg		01/15/15 13:49	01/16/15 10:49	1

Lab Sample ID: LCSSRM 480-223134/2-A **Client Sample ID: Lab Control Sample**

Matrix: Solid

Analysis Batch: 223277

MB MB

341

Prep Type: Total/NA Prep Batch: 223134

Prep Batch: 223134

109

775

619

75 - 125

mg/Kg

-	Spike	LCSSRM	LCSSRM				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Arsenic	 150	114.1		mg/Kg		76.0	70.9 - 129.	
							8	
Lead	252	217.1		mg/Kg		86.0	75.6 - 124.	
							8	

Lab Sample ID: 480-74220-2 MS Client Sample ID: LT-GI-001 (4-6) Prep Type: Total/NA

Matrix: Solid

Analysis Batch: 223277

-	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Lead	341		41.7	184.4	4	mg/Kg	\	-377	75 - 125	

Lab Sample ID: 480-74220-2 MSD Client Sample ID: LT-GI-001 (4-6) **Matrix: Solid** Prep Type: Total/NA

Lead

Analysis Batch: 223277 Prep Batch: 223134 Sample Sample Spike MSD MSD %Rec. RPD Analyte Result Qualifier Added Result Qualifier Limits RPD Limit Unit %Rec

629.0 4 F2

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QC Association Summary

Client: Posillico Consulting

Project/Site: Glen Isle: Data Gap Field Program

TestAmerica Job ID: 480-74220-1

Metals

Prep Batch: 223134

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-74220-1	LT-G-022 (0-2)	Total/NA	Solid	3050B	
480-74220-2	LT-GI-001 (4-6)	Total/NA	Solid	3050B	
480-74220-2 MS	LT-GI-001 (4-6)	Total/NA	Solid	3050B	
480-74220-2 MSD	LT-GI-001 (4-6)	Total/NA	Solid	3050B	
LCSSRM 480-223134/2-A	Lab Control Sample	Total/NA	Solid	3050B	
MB 480-223134/1-A	Method Blank	Total/NA	Solid	3050B	

Analysis Batch: 223277

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-74220-1	LT-G-022 (0-2)	Total/NA	Solid	6010C	223134
480-74220-2	LT-GI-001 (4-6)	Total/NA	Solid	6010C	223134
480-74220-2 MS	LT-GI-001 (4-6)	Total/NA	Solid	6010C	223134
480-74220-2 MSD	LT-GI-001 (4-6)	Total/NA	Solid	6010C	223134
LCSSRM 480-223134/2-A	Lab Control Sample	Total/NA	Solid	6010C	223134
MB 480-223134/1-A	Method Blank	Total/NA	Solid	6010C	223134

General Chemistry

Analysis Batch: 223163

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-74220-1	LT-G-022 (0-2)	Total/NA	Solid	Moisture	
480-74220-2	LT-GI-001 (4-6)	Total/NA	Solid	Moisture	

220.4

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Lab Chronicle

Client: Posillico Consulting

Date Collected: 01/14/15 11:40

Date Received: 01/15/15 09:30

Project/Site: Glen Isle: Data Gap Field Program

Client Sample ID: LT-G-022 (0-2)

TestAmerica Job ID: 480-74220-1

Lab Sample ID: 480-74220-1

Matrix: Solid
Percent Solids: 86.6

	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			223134	01/15/15 13:49	TAS	TAL BUF
Total/NA	Analysis	6010C		1	223277	01/16/15 10:54	SLB	TAL BUF
Total/NA	Analysis	Moisture		1	223163	01/15/15 21:01	CMK	TAL BUF

Client Sample ID: LT-GI-001 (4-6)

Lab Sample ID: 480-74220-2

Date Collected: 01/14/15 12:25

Date Received: 01/15/15 09:30

Matrix: Solid
Percent Solids: 88.4

	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			223134	01/15/15 13:49	TAS	TAL BUF
Total/NA	Analysis	6010C		1	223277	01/16/15 10:57	SLB	TAL BUF
Total/NA	Analysis	Moisture		1	223163	01/15/15 21:01	CMK	TAL BUF

Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

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Certification Summary

Client: Posillico Consulting

Project/Site: Glen Isle: Data Gap Field Program

TestAmerica Job ID: 480-74220-1

Laboratory: TestAmerica Buffalo

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program		EPA Region	Certification ID	Expiration Date
New York	NELAP		2	10026	03-31-15
The following analytes	are included in this report, bu	t certification is not offe	ered by the governing a	authority:	
			, ,	•	
Analysis Method	Prep Method	Matrix	Analyi	te	
Analysis Method Moisture	Prep Method	Matrix Solid		nt Moisture	

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Method Summary

Client: Posillico Consulting

Project/Site: Glen Isle: Data Gap Field Program

TestAmerica Job ID: 480-74220-1

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	TAL BUF
Moisture	Percent Moisture	EPA	TAL BUF

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

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Sample Summary

Client: Posillico Consulting

Project/Site: Glen Isle: Data Gap Field Program

TestAmerica Job ID: 480-74220-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-74220-1	LT-G-022 (0-2)	Solid	01/14/15 11:40	01/15/15 09:30
480-74220-2	LT-GI-001 (4-6)	Solid	01/14/15 12:25	01/15/15 09:30

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777 New Durham Road Edison, New Jersey 08817 Phone: (732) 549-3900 Fax: (732) 549-3679 Redersalopmoint State (Location of site): NJ: Site/Project Identification CHAIN OF CUSTODY / ANALYSIS REQUEST Samplers Name (Printed)
| HWLMa J. Nacc THE LEADER IN ENVIRONMENTAL TESTING **TestAmerica** Name (for report and invoice)

Company	7	#.O.				State (Location of site):	tion or site).	J:PN	NY:YN	Omer:
PXR-01811SIC TWANS	TOWNS/11C					Hegulatory Program:	Program:			
Address / " To	_	Analysis Turnaround Time	around Time	(ANALYSIS R	ANALYSIS REQUESTED (ENTER 'X: BELOW TO INDICATE REQUEST)	ELOW TO INDICATE	REQUEST)		LAB USE ONLY
	te C	Standard Standard Rush Charges A	Standard Kannard Kannard For:	-	(11)	(715				Project No:
Uniondule N.Y.		2 Week	() वद	21790	P (1:				Job No:
		Other	Other N 388 Delaw	1704	1 0	/d				Sample
Sample Identification	Date	Time N	×	QT.	いて	192				Numbers
(T-C1-022(0-2)	IIIIIIS	1;ºS Oh)	5:1 2	X	X					
(J-4) (CE-00)	111416	1225 Soil	011 2	×	\propto					
(T-C)19(2-4)	1114115	1250 5	5611 2			X				
		_								
		7								
		/	[八]							
480-74220 Chain of Custody		/	7							
					_					/
Preservation Used: $1 = ICE$, $2 = HCI$, $3 = H_2SO_4$,		4 = HNO ₃ , 5 = NaOH	Soil:	Z I	$\stackrel{\wedge}{\times}$	X				
6 = Other, 7	7 = Other		Water:							
Special Instructions * HOLD	ALL SA	SAMPLES *	*					Water Mei	Water Metals Filtered (Yes/No)?	Yes/No)?
	Company		Date / Time	əı	Received by)\ \\$\	V	Company	Kun	
- A Raich	WGC W		14/16/1 1320		1)	と			t	
Relinguished by	Sompany '		Date / Time		Received by	1 Arat	R	Company	i .	50/51/1
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elinquished by	Company		Date / Time)	Received by	þý		Company	ıny	
(4)					4)					
Laboratory Certifications: New Jersey (12028), New York (11452),	12028), New	York (1145)		Pennsylvania (68-522),	8-522),	Connecticut (PH-0200),	PH-0200),	Rhode Island (132)	and (132).	TAL - 0016 (0814)

Massachusetts (M-NJ312), North Carolina (No. 578)

Login Sample Receipt Checklist

Client: Posillico Consulting

Job Number: 480-74220-1

Login Number: 74220 List Source: TestAmerica Buffalo

List Number: 1

Creator: Robison, Zachary J

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	PWGC
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	N/A	
Chlorine Residual checked.	N/A	

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THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Buffalo 10 Hazelwood Drive Amherst, NY 14228-2298 Tel: (716)691-2600

TestAmerica Job ID: 480-74300-1

Client Project/Site: Glen Isle: Data Gap Field Program

Revision: 1

For:

Posillico Consulting 1750 New Highway Farmingdale, New York 11735

Attn: Ellis Koch

Authorized for release by: 2/4/2015 10:35:14 AM

John Schove, Project Manager II (716)504-9838

john.schove@testamericainc.com

·····LINKS ·······

Review your project results through

Total Access

Have a Question?



Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Cover Page	1
Table of Contents	2
Definitions/Glossary	3
Case Narrative	4
Detection Summary	5
Client Sample Results	6
QC Sample Results	11
QC Association Summary	13
Lab Chronicle	15
Certification Summary	17
Method Summary	18
Sample Summary	19
Chain of Custody	20
Receipt Chacklists	21

8

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13

Definitions/Glossary

Client: Posillico Consulting

Project/Site: Glen Isle: Data Gap Field Program

TestAmerica Job ID: 480-74300-1

Qualifiers

Metals

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not
F2	applicable. MS/MSD RPD exceeds control limits
U	Indicates the analyte was analyzed for but not detected.

Glossary

RPD

TEF

TEQ

Clossary	
Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)

Relative Percent Difference, a measure of the relative difference between two points

Toxicity Equivalent Factor (Dioxin)

Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: Posillico Consulting

Project/Site: Glen Isle: Data Gap Field Program

TestAmerica Job ID: 480-74300-1

Job ID: 480-74300-1

Laboratory: TestAmerica Buffalo

Narrative

Job Narrative 480-74300-1

Revision

This report has been revised to correct calculation errors and to include confirmation results.

Receipt

The samples were received on 1/16/2015 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.3° C.

Metals

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

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Detection Summary

Client: Posillico Consulting

Project/Site: Glen Isle: Data Gap Field Program

TestAmerica Job ID: 480-74300-1

Client Sample ID: LT-C-024 (2-4) Lab Sample ID: 480-74300-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	93.9		5.7	0.28	mg/Kg	1	₩	6010C	Total/NA
Lead - RE	72.3		5.6	0.27	mg/Kg	1	₩	6010C	Total/NA

Client Sample ID: CC-C-023 (6-8) Lab Sample ID: 480-74300-2

Analyte	Result Qualifier	RL	MDL Unit	Dil Fac D Method	Prep Type
Lead	267	5.9	0.28 mg/Kg	1 🌣 6010C	Total/NA
Lead - RE	265	5.7	0.27 mg/Kg	1 🌣 6010C	Total/NA

Client Sample ID: CC-C-029 (8-10) Lab Sample ID: 480-74300-4

Analyte	Result Qualifier	RL	MDL Unit	Dil Fac	O Method	Prep Type
Lead	239	6.4	0.31 mg/Kg	1	6010C	Total/NA
Lead - RE	416	6.2	0.30 mg/Kg	1	[‡] 6010C	Total/NA

Client Sample ID: CC-C-030 (8) Lab Sample ID: 480-74300-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	1780		5.7	0.27	mg/Kg	1	₩	6010C	Total/NA
Lead - RE	8620		6.2	0.30	mg/Kg	1	₩	6010C	Total/NA
Lead	68.9		0.010	0.0030	mg/L	1		6010C	TCLP

Client Sample ID: CC-C-030 (10) Lab Sample ID: 480-74300-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	51.9		12.2	0.49	mg/Kg	1	₩	6010C	Total/NA
Lead	13900		30.5	1.5	mg/Kg	5	₩	6010C	Total/NA
Arsenic - RE	67.8		11.9	0.48	mg/Kg	1	₽	6010C	Total/NA
Lead - RE	19900		29.8	1.4	mg/Kg	5	Þ	6010C	Total/NA
Lead	51.4		0.010	0.0030	mg/L	1		6010C	TCLP

This Detection Summary does not include radiochemical test results.

TestAmerica Buffalo

Client: Posillico Consulting

Project/Site: Glen Isle: Data Gap Field Program

Client Sample ID: LT-C-024 (2-4)

TestAmerica Job ID: 480-74300-1

Lab Sample ID: 480-74300-1

Date Collected: 01/15/15 15:40	Matrix: Solid
Date Received: 01/16/15 09:00	Percent Solids: 86.9

Method: 6010C - Metals (ICP) Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	93.9		5.7	0.28	mg/Kg	<u> </u>	01/16/15 07:20	01/19/15 14:15	1
Method: 6010C - Metals (ICP) - RE									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	72.3		5.6	0.27	mg/Kg	\	01/20/15 14:26	01/21/15 17:40	1

Client: Posillico Consulting

Date Collected: 01/15/15 09:05

Project/Site: Glen Isle: Data Gap Field Program

Client Sample ID: CC-C-023 (6-8)

TestAmerica Job ID: 480-74300-1

Lab Sample ID: 480-74300-2

Matrix: Solid

Date Received: 01/16/15 09:00	Percent Solids: 83.4
Method: 6010C - Metals (ICP)	

Analyte	Result Qualifier	RL	MDL Unit	D	Prepared	Analyzed	Dil Fac
Lead	267	5.9	0.28 mg/Kg	-	01/16/15 07:20	01/19/15 14:18	1

Method: 6010C - Metals (ICP) - RE									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Load	265		5.7	0.27	ma/Ka	<u> </u>	01/20/15 14:26	01/21/15 17:43	

Client: Posillico Consulting

Date Collected: 01/15/15 10:05

Date Received: 01/16/15 09:00

Project/Site: Glen Isle: Data Gap Field Program

Client Sample ID: CC-C-029 (8-10)

TestAmerica Job ID: 480-74300-1

Lab Sample ID: 480-74300-4

Percent Solids: 76.0

Matrix: Solid

Method: 6010C - Metals (ICP) Analyte Lead	Result 239	Qualifier	RL 6.4	MDL 0.31	Unit mg/Kg	D	Prepared 01/16/15 07:20	Analyzed 01/19/15 14:31	Dil Fac
Method: 6010C - Metals (ICP) - RE Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	416		6.2	0.30	mg/Kg	<u> </u>	01/20/15 14:26	01/21/15 17:56	1

Client Sample Results

Client: Posillico Consulting

Project/Site: Glen Isle: Data Gap Field Program

Client Sample ID: CC-C-030 (8)

Date Collected: 01/15/15 11:25

Date Received: 01/16/15 09:00

TestAmerica Job ID: 480-74300-1

Lab Sample ID: 480-74300-5

Matrix: Solid

Percent Solids: 83.4

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
Lead	1780		5.7	0.27	mg/Kg	-	01/16/15 07:20	01/19/15 14:42	
Method: 6010C - Metals (ICP) - RE									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
Lead	8620		6.2	0.30	mg/Kg	₩	01/20/15 14:26	01/21/15 18:07	
•									
Method: 6010C - Metals (ICP) - TCLP									
Method: 6010C - Metals (ICP) - TCLP Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa

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Client Sample Results

Client: Posillico Consulting

Date Collected: 01/15/15 11:30

Date Received: 01/16/15 09:00

Project/Site: Glen Isle: Data Gap Field Program

Client Sample ID: CC-C-030 (10)

TestAmerica Job ID: 480-74300-1

Lab Sample ID: 480-74300-6

Matrix: Solid

Percent Solids: 79.0

Method: 6010C - Metals (ICP)									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	51.9		12.2	0.49	mg/Kg	₽	01/16/15 07:20	01/19/15 14:45	1
Lead	13900		30.5	1.5	mg/Kg	₽	01/16/15 07:20	01/19/15 15:05	5
Method: 6010C - Metals (ICP) - RE									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	67.8		11.9	0.48	mg/Kg		01/20/15 14:26	01/21/15 18:10	1
Lead	19900		29.8	1.4	mg/Kg	₩	01/20/15 14:26	01/22/15 09:57	5

Method: 6010C - Metals (ICP) - TCLI								D.1 F
Analyte	Result Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
l ead	51.4	0.010	0.0030	ma/L		01/29/15 07:40	01/29/15 13:53	

Client: Posillico Consulting

Project/Site: Glen Isle: Data Gap Field Program

TestAmerica Job ID: 480-74300-1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 480-223306/1-A

Matrix: Solid

Analysis Batch: 223527

Client Sample	ID:	Meth	od	Bla	anl	K
D.	ъ.		Tot	101	NI /	۸

Prep Type: Total/NA

Prep Batch: 223306

	MB	MB							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	10.3	U	10.3	0.41	mg/Kg		01/16/15 07:20	01/19/15 14:10	1
Lead	5.1	U	5.1	0.25	mg/Kg		01/16/15 07:20	01/19/15 14:10	1

Lab Sample ID: LCSSRM 480-223306/2-A

Matrix: Solid

Analysis Batch: 223527

Client Sample ID:	Lab Control Sample
1	Prep Type: Total/NA

Prep Batch: 223306

١		Spike	LCSSRM	LCSSRM				%Rec.	
	Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
	Arsenic	153	131.0		mg/Kg		85.6	70.9 - 129.	
								8	
	Lead	258	235.1		mg/Kg		91.3	75.6 - 124.	
l	_							8	

Client Sample ID: CC-C-023 (6-8) Lab Sample ID: 480-74300-2 MS

Matrix: Solid

Analysis Batch: 223527

Frep Type. Total	tai/iv/
Prep Batch: 22	2330

Sample Sample Spike MS MS %Rec. Result Qualifier Added Result Qualifier Limits Analyte Unit D %Rec ₩ Arsenic 12.1 46.1 49.95 mg/Kg 82 75 - 125 Lead 267 46.1 281.3 4 mg/Kg 30 75 - 125

Lab Sample ID: 480-74300-2 MSD Client Sample ID: CC-C-023 (6-8)

Matrix: Solid

Analysis Batch: 223527

Prep Type:	Total/NA
Bron Batel	h. 222206

7 manyolo Batolii 22002.											
	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Arsenic	12.1		46.3	49.94		mg/Kg		82	75 - 125	0	20
Lead	267		46.3	394.1	4 F2	mg/Kg	₩	274	75 - 125	33	20

Lab Sample ID: MB 480-223666/1-A Client Sample ID: Method Blank

Matrix: Solid

Analysis Batch: 223960

Prep Type: Total/NA **Prep Batch: 223666**

-	MB	MB						-	
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	10.0	U	10.0	0.40	mg/Kg		01/20/15 14:26	01/21/15 17:35	1
Lead	5.0	U	5.0	0.24	mg/Kg		01/20/15 14:26	01/21/15 17:35	1

Lab Sample ID: LCSSRM 480-223666/2-A Client Sample ID: Lab Control Sample

Matrix: Solid

Analysis Batch: 223960

·	Prep Type: Total/NA
	Prep Batch: 223666

	Spike	LCSSRM	LCSSRM				%Rec.
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits
Arsenic	152	143.7		mg/Kg		94.3	70.9 - 129.
							8
Lead	257	258.8		mg/Kg		100.9	75.6 - 124.
							8

TestAmerica Buffalo

Project/Site: Glen Isle: Data Gap Field Program

TestAmerica Job ID: 480-74300-1

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: 480-74300-2 MS Client Sample ID: CC-C-023 (6-8)

Matrix: Solid

Analysis Batch: 223960

Prep Type: Total/NA Prep Batch: 223666

	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Arsenic	15.0		47.1	52.90		mg/Kg	\	80	75 - 125	
Lead	265		47.1	263.3	4	mg/Kg	₩	-3	75 - 125	

Lab Sample ID: 480-74300-2 MSD Client Sample ID: CC-C-023 (6-8)

Matrix: Solid

Analysis Batch: 223960

Prep Type: Total/NA

Prep Batch: 223666

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	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Arsenic	15.0		46.5	51.28		mg/Kg	<u> </u>	78	75 - 125	3	20
Lead	265		46.5	285.3	4	mg/Kg	₩	44	75 - 125	8	20

Lab Sample ID: MB 480-224829/2-A Client Sample ID: Method Blank

Matrix: Solid

Analysis Batch: 225052 мв мв Prep Type: Total/NA

Prep Batch: 224829

Analyte Result Qualifier RL MDL Unit Prepared Analyzed Dil Fac Lead 0.010 U 0.010 0.0030 mg/L 01/29/15 07:40 01/29/15 13:42

Lab Sample ID: LCS 480-224829/3-A Client Sample ID: Lab Control Sample

Matrix: Solid

Analysis Batch: 225052

Prep Type: Total/NA

Prep Batch: 224829

LCS LCS Spike %Rec Added Qualifier Limits Analyte Result Unit %Rec Lead 1.00 0.976 mg/L 80 - 120

Lab Sample ID: LCSD 480-224829/4-A Client Sample ID: Lab Control Sample Dup **Matrix: Solid** Prep Type: Total/NA Analysis Batch: 225052 Prep Batch: 224829 LCSD LCSD Spike %Rec. **RPD**

Added Analyte Result Qualifier Unit %Rec Limits **RPD** Limit 1.00 0.965 mg/L 80 - 120 Lead 97

Lab Sample ID: LB 480-224354/1-F Client Sample ID: Method Blank

Matrix: Solid Prep Type: TCLP Analysis Batch: 225052 Prep Batch: 224829

LB LB Result Qualifier RL MDL Unit D Dil Fac Analyte Prepared Analyzed 0.010 Lead 0.010 U 0.0030 mg/L 01/29/15 07:40 01/29/15 13:39

QC Association Summary

Client: Posillico Consulting

Project/Site: Glen Isle: Data Gap Field Program

TestAmerica Job ID: 480-74300-1

Metals

Prep Batch: 223306

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-74300-1	LT-C-024 (2-4)	Total/NA	Solid	3050B	
480-74300-2	CC-C-023 (6-8)	Total/NA	Solid	3050B	
480-74300-2 MS	CC-C-023 (6-8)	Total/NA	Solid	3050B	
480-74300-2 MSD	CC-C-023 (6-8)	Total/NA	Solid	3050B	
480-74300-4	CC-C-029 (8-10)	Total/NA	Solid	3050B	
480-74300-5	CC-C-030 (8)	Total/NA	Solid	3050B	
480-74300-6	CC-C-030 (10)	Total/NA	Solid	3050B	
LCSSRM 480-223306/2-A	Lab Control Sample	Total/NA	Solid	3050B	
MB 480-223306/1-A	Method Blank	Total/NA	Solid	3050B	

Analysis Batch: 223527

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-74300-1	LT-C-024 (2-4)	Total/NA	Solid	6010C	223306
480-74300-2	CC-C-023 (6-8)	Total/NA	Solid	6010C	223306
480-74300-2 MS	CC-C-023 (6-8)	Total/NA	Solid	6010C	223306
480-74300-2 MSD	CC-C-023 (6-8)	Total/NA	Solid	6010C	223306
480-74300-4	CC-C-029 (8-10)	Total/NA	Solid	6010C	223306
480-74300-5	CC-C-030 (8)	Total/NA	Solid	6010C	223306
480-74300-6	CC-C-030 (10)	Total/NA	Solid	6010C	223306
480-74300-6	CC-C-030 (10)	Total/NA	Solid	6010C	223306
LCSSRM 480-223306/2-A	Lab Control Sample	Total/NA	Solid	6010C	223306
MB 480-223306/1-A	Method Blank	Total/NA	Solid	6010C	223306

Prep Batch: 223666

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batcl
480-74300-1 - RE	LT-C-024 (2-4)	Total/NA	Solid	3050B	
480-74300-2 - RE	CC-C-023 (6-8)	Total/NA	Solid	3050B	
480-74300-2 MS	CC-C-023 (6-8)	Total/NA	Solid	3050B	
480-74300-2 MSD	CC-C-023 (6-8)	Total/NA	Solid	3050B	
480-74300-4 - RE	CC-C-029 (8-10)	Total/NA	Solid	3050B	
480-74300-5 - RE	CC-C-030 (8)	Total/NA	Solid	3050B	
480-74300-6 - RE	CC-C-030 (10)	Total/NA	Solid	3050B	
LCSSRM 480-223666/2-A	Lab Control Sample	Total/NA	Solid	3050B	
MB 480-223666/1-A	Method Blank	Total/NA	Solid	3050B	

Analysis Batch: 223960

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-74300-1 - RE	LT-C-024 (2-4)	Total/NA	Solid	6010C	223666
480-74300-2 - RE	CC-C-023 (6-8)	Total/NA	Solid	6010C	223666
480-74300-2 MS	CC-C-023 (6-8)	Total/NA	Solid	6010C	223666
480-74300-2 MSD	CC-C-023 (6-8)	Total/NA	Solid	6010C	223666
480-74300-4 - RE	CC-C-029 (8-10)	Total/NA	Solid	6010C	223666
480-74300-5 - RE	CC-C-030 (8)	Total/NA	Solid	6010C	223666
480-74300-6 - RE	CC-C-030 (10)	Total/NA	Solid	6010C	223666
LCSSRM 480-223666/2-A	Lab Control Sample	Total/NA	Solid	6010C	223666
MB 480-223666/1-A	Method Blank	Total/NA	Solid	6010C	223666

Analysis Batch: 224044

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-74300-6 - RE	CC-C-030 (10)	Total/NA	Solid	6010C	223666

TestAmerica Buffalo

Page 13 of 21

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14

QC Association Summary

Client: Posillico Consulting

Project/Site: Glen Isle: Data Gap Field Program

TestAmerica Job ID: 480-74300-1

Metals (Continued)

Leach Batch: 224354

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-74300-5	CC-C-030 (8)	TCLP	Solid	1311	
480-74300-6	CC-C-030 (10)	TCLP	Solid	1311	
LB 480-224354/1-F	Method Blank	TCLP	Solid	1311	

Prep Batch: 224829

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-74300-5	CC-C-030 (8)	TCLP	Solid	3010A	224354
480-74300-6	CC-C-030 (10)	TCLP	Solid	3010A	224354
LB 480-224354/1-F	Method Blank	TCLP	Solid	3010A	224354
LCS 480-224829/3-A	Lab Control Sample	Total/NA	Solid	3010A	
LCSD 480-224829/4-A	Lab Control Sample Dup	Total/NA	Solid	3010A	
MB 480-224829/2-A	Method Blank	Total/NA	Solid	3010A	

Analysis Batch: 225052

Client Sample ID	Prep Type	Matrix	Method	Prep Batch
CC-C-030 (8)	TCLP	Solid	6010C	224829
CC-C-030 (10)	TCLP	Solid	6010C	224829
Method Blank	TCLP	Solid	6010C	224829
Lab Control Sample	Total/NA	Solid	6010C	224829
Lab Control Sample Dup	Total/NA	Solid	6010C	224829
Method Blank	Total/NA	Solid	6010C	224829
	CC-C-030 (8) CC-C-030 (10) Method Blank Lab Control Sample Lab Control Sample Dup	CC-C-030 (8) TCLP CC-C-030 (10) TCLP Method Blank TCLP Lab Control Sample Total/NA Lab Control Sample Dup Total/NA	CC-C-030 (8) TCLP Solid CC-C-030 (10) TCLP Solid Method Blank TCLP Solid Lab Control Sample Total/NA Solid Lab Control Sample Dup Total/NA Solid	CC-C-030 (8) TCLP Solid 6010C CC-C-030 (10) TCLP Solid 6010C Method Blank TCLP Solid 6010C Lab Control Sample Total/NA Solid 6010C Lab Control Sample Dup Total/NA Solid 6010C

General Chemistry

Analysis Batch: 223327

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-74300-1	LT-C-024 (2-4)	Total/NA	Solid	Moisture	
480-74300-2	CC-C-023 (6-8)	Total/NA	Solid	Moisture	
480-74300-4	CC-C-029 (8-10)	Total/NA	Solid	Moisture	
480-74300-5	CC-C-030 (8)	Total/NA	Solid	Moisture	
480-74300-6	CC-C-030 (10)	Total/NA	Solid	Moisture	

Client: Posillico Consulting

Project/Site: Glen Isle: Data Gap Field Program

Lab Sample ID: 480-74300-1

Matrix: Solid Percent Solids: 86.9

Client Sample ID: LT-C-024 (2-4)

Client Sample ID: CC-C-023 (6-8)

Date Collected: 01/15/15 15:40 Date Received: 01/16/15 09:00

_	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			223306	01/16/15 07:20	EJT	TAL BUF
Total/NA	Analysis	6010C		1	223527	01/19/15 14:15	SLB	TAL BUF
Total/NA	Prep	3050B	RE		223666	01/20/15 14:26	EJT	TAL BUF
Total/NA	Analysis	6010C	RE	1	223960	01/21/15 17:40	AMH	TAL BUF
Total/NA	Analysis	Moisture		1	223327	01/16/15 20:50	CMK	TAL BUF

Lab Sample ID: 480-74300-2

Matrix: Solid

Lab Sample ID: 480-74300-5

Date Collected: 01/15/15 09:05 Date Received: 01/16/15 09:00 Percent Solids: 83.4

	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			223306	01/16/15 07:20	EJT	TAL BUF
Total/NA	Analysis	6010C		1	223527	01/19/15 14:18	SLB	TAL BUF
Total/NA	Prep	3050B	RE		223666	01/20/15 14:26	EJT	TAL BUF
Total/NA	Analysis	6010C	RE	1	223960	01/21/15 17:43	AMH	TAL BUF
Total/NA	Analysis	Moisture		1	223327	01/16/15 20:50	CMK	TAL BUF

Client Sample ID: CC-C-029 (8-10)

Lab Sample ID: 480-74300-4 Date Collected: 01/15/15 10:05 **Matrix: Solid** Date Received: 01/16/15 09:00 Percent Solids: 76.0

	Batch	Batch Dilution		Batch	Prepared			
Prep Type	Type	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			223306	01/16/15 07:20	EJT	TAL BUF
Total/NA	Analysis	6010C		1	223527	01/19/15 14:31	SLB	TAL BUF
Total/NA	Prep	3050B	RE		223666	01/20/15 14:26	EJT	TAL BUF
Total/NA	Analysis	6010C	RE	1	223960	01/21/15 17:56	AMH	TAL BUF
Total/NA	Analysis	Moisture		1	223327	01/16/15 20:50	CMK	TAL BUF

Client Sample ID: CC-C-030 (8)

Date Collected: 01/15/15 11:25 Matrix: Solid

Date Received: 01/16/15 09:00

	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
TCLP	Leach	1311			224354	01/26/15 08:30	TRG	TAL BUF
TCLP	Prep	3010A			224829	01/29/15 07:40	TAS	TAL BUF
TCLP	Analysis	6010C		1	225052	01/29/15 13:50	AMH	TAL BUF
Total/NA	Prep	3050B			223306	01/16/15 07:20	EJT	TAL BUF
Total/NA	Analysis	6010C		1	223527	01/19/15 14:42	SLB	TAL BUF
Total/NA	Prep	3050B	RE		223666	01/20/15 14:26	EJT	TAL BUF
Total/NA	Analysis	6010C	RE	1	223960	01/21/15 18:07	AMH	TAL BUF
Total/NA	Analysis	Moisture		1	223327	01/16/15 20:50	CMK	TAL BUF

TestAmerica Buffalo

Lab Chronicle

Client: Posillico Consulting

Project/Site: Glen Isle: Data Gap Field Program

TestAmerica Job ID: 480-74300-1

Lab Sample ID: 480-74300-6

Matrix: Solid

Client Sample ID: CC-C-030 (10)

Date Collected: 01/15/15 11:30 Date Received: 01/16/15 09:00

	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
TCLP	Leach	1311			224354	01/26/15 08:30	TRG	TAL BUF
TCLP	Prep	3010A			224829	01/29/15 07:40	TAS	TAL BUF
TCLP	Analysis	6010C		1	225052	01/29/15 13:53	AMH	TAL BUF
Total/NA	Prep	3050B	RE		223666	01/20/15 14:26	EJT	TAL BUF
Total/NA	Analysis	6010C	RE	5	224044	01/22/15 09:57	AMH	TAL BUF
Total/NA	Prep	3050B			223306	01/16/15 07:20	EJT	TAL BUF
Total/NA	Analysis	6010C		1	223527	01/19/15 14:45	SLB	TAL BUF
Total/NA	Prep	3050B			223306	01/16/15 07:20	EJT	TAL BUF
Total/NA	Analysis	6010C		5	223527	01/19/15 15:05	SLB	TAL BUF
Total/NA	Prep	3050B	RE		223666	01/20/15 14:26	EJT	TAL BUF
Total/NA	Analysis	6010C	RE	1	223960	01/21/15 18:10	AMH	TAL BUF
Total/NA	Analysis	Moisture		1	223327	01/16/15 20:50	CMK	TAL BUF

Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

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Certification Summary

Client: Posillico Consulting

Project/Site: Glen Isle: Data Gap Field Program

TestAmerica Job ID: 480-74300-1

Laboratory: TestAmerica Buffalo

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program		Certification ID	Expiration Date	
New York	NELAP 2		2	10026	03-31-15 *
The following analytes	are included in this report bu	it cortification is not off	rad by the gayerning	with a rity ii	
The following dridiy too	are included in this report, bu	it certification is not on	ered by the governing a	authority.	
Analysis Method	Prep Method	Matrix	Analyt	•	
o ,	• •		Analyt	•	

 $[\]ensuremath{^{\star}}$ Certification renewal pending - certification considered valid.

TestAmerica Buffalo

Method Summary

Client: Posillico Consulting

Project/Site: Glen Isle: Data Gap Field Program

TestAmerica Job ID: 480-74300-1

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	TAL BUF
Moisture	Percent Moisture	EPA	TAL BUF

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

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Sample Summary

Client: Posillico Consulting

Project/Site: Glen Isle: Data Gap Field Program

TestAmerica Job ID: 480-74300-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-74300-1	LT-C-024 (2-4)	Solid	01/15/15 15:40	01/16/15 09:00
480-74300-2	CC-C-023 (6-8)	Solid	01/15/15 09:05	01/16/15 09:00
480-74300-4	CC-C-029 (8-10)	Solid	01/15/15 10:05	01/16/15 09:00
480-74300-5	CC-C-030 (8)	Solid	01/15/15 11:25	01/16/15 09:00
480-74300-6	CC-C-030 (10)	Solid	01/15/15 11:30	01/16/15 09:00

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TAL - 0016 (0814)

Shode Island (132). \mathcal{Z} :

Laboratory Certifications: New Jersey (12028), New York (11452), Pennsylvania (68-522), Connecticut

Massachusetts (M-NJ312), North Carolina (No. 578)

777 New Durham Road Edison, New Jersey 08817 Phone: (732) 549-3900 Fax: (732) 549-3679

Redevelopment LAB USE ONLY Project No: Sample Numbers Job No: Water Metals Filtered (Yes/No)? Company Sompany ANALYSIS REQUESTED (ENTER "X: BELOW TO INDICATE REQUEST) Site/Project Identification State (Location of site): Regulatory Program: CHAIN OF CUSTODY / ANALYSIS REQUEST SPLP Argenic (1312 down D. Regelived by Received by Received by Received by Samplers Name (Printed)
Amande J. Roccuriello
P. O. # * HULD * Will Cortact Via emer! * 10101 (ead 150 ISO 1415-1 6900 Date / Time Date / Time Soil: Water: No. of. Cont. 4 Rush Charges Authorized For. 2 Week | 14 1/4 3 2 4 Analysis Turnaround Time Matrix 0905 Soil 0930 5011 Sol 1115/115/1005/5031) (S 380 881 Other X Standard Preservation Used: 1 = ICE, 2 = HCI, 3 = H₂SO₄, 4 = HNO₃, 5 = NaOH1 Week Time 115/15 1125 1/15/15/1/30 115115 Date 10 Company
RXR-GIRNISIE Parthers, 1 7 = OtherCompany Company State Z S OZS RKR Pluzes (2) (3) CC-C-029(8-10) Sample Identification CC-C-030 (10) 6 = Other Fllis Koch Name (for report and invoice) Special Instructions -02d CC-C-028) 050-0-030 CC-C-053 480-74300 Chain of Custody Relinquished by Relinquished by Relinguished by Relinquished by # 2000 F Phone থ

Page 20 of 21

Login Sample Receipt Checklist

Client: Posillico Consulting Job Number: 480-74300-1

Login Number: 74300 List Source: TestAmerica Buffalo

List Number: 1 Creator: Janish, Carl M

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Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	pwgc
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	N/A	
Chlorine Residual checked.	N/A	

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APPENDIX C

LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

February 11, 2015

Posillico Consulting 1750 New Highway Farmingdale, NY 11735 ATTN: Mr. Ellis Koch

SUBJECT: Glen Isle, Data Validation

Dear Mr. Koch,

Enclosed is the final validation report for the fraction listed below. This SDG was received on February 4, 2015. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project #33666:

SDG # Fraction
480-74300-1 Metals

The data validation was performed under Category B guidelines. The analyses were validated using the following documents, as applicable to each method:

- USEPA Region 2 Standard Operating Procedure for the Evaluation of Metals for the Contract Laboratory Program, SOP HW-2, Revision 13, September 2006
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, EPA 540-R-10-011, January 2010

Please feel free to contact us if you have any questions.

Christina Rink

Sincerely.

Project Manager/Chemist

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Site: Glen Isle

Laboratory: Test America, Inc. **Report No.:** 480-74300-1

Reviewer: Christina Rink/Laboratory Data Consultants for RXR Glen Isle Partners

Date: February 10, 2015

Samples Reviewed and Evaluation Summary

FIELD ID	LAB ID	FRACTIONS VALIDATED
LT-C-024 (2-4)	480-74300-1	Lead
LT-C-024 (2-4)RE	480-74300-1RE	Lead
CC-C-023 (6-8)	480-74300-2	Lead
CC-C-023 (6-8)RE	480-74300 - 2RE	Lead
CC-C-029 (8-10)	480-74300-4	Lead
CC-C-029 (8-10)RE	480-74300-4RE	Lead
CC-C-030 (8)	480-74300-5	Lead
CC-C-030 (8)RE	480-74300-5RE	Lead
CC-C-030 (10)	480-74300-6	Arsenic and Lead
CC-C-030 (10)RE	480-74300-6RE	Arsenic and Lead
CC-C-030 (8) (TCLP)	480-74300-5(TCLP)	Lead
CC-C-030 (10) (TCLP)	480-74300-6(TCLP)	Lead
CC-C-023 (6-8)MS	480-74300-2MS	Lead
CC-C-023 (6-8)MSD	480-74300 - 2MSD	Lead
CC-C-023 (6-8)REMS	480-74300 - 2REMS	Arsenic and Lead
CC-C-023 (6-8)REMSD	480-74300-2REMSD	Arsenic and Lead

Associated QC Samples(s):

Field/Trip Blanks: None Associated Field Duplicate pair: None Associated

The above-listed soil samples were collected on January 15, 2015 and were analyzed for arsenic and lead by SW-846 methods 6010C. The data validation was performed in accordance with the USEPA Region 2 Standard Operating Procedure for the Evaluation of Metals for the Contract Laboratory Program, SOP HW-2, Revision 13 (September 2006) and the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, EPA 540-R-10-011 (January 2010), modified as necessary to accommodate the non-CLP methodologies used.

Glen Isle, NYSDEC, Project Number: RWI1401

The inorganic data were evaluated based on the following parameters:

- Overall Evaluation of Data and Potential Usability Issues
- Data Completeness
- Holding Times and Sample Preservation
- Instrument Calibration
- Contract Required Quantitation Limit (CRQL) Standard Recoveries
- Blank Analysis Results
- Inductively Coupled Plasma (ICP) Interference Check Sample (ICS) Results
- Matrix Spike (MS) Results
- Laboratory Duplicate Results
- Field Duplicate Results
- Laboratory Control Sample (LCS)/Certified Reference Material (CRM) Results
- Serial Dilution Results
- Moisture Content
- Detection Limits Results
- Sample Quantitation Results

Overall Evaluation of Data and Potential Usability Issues

All results are usable as reported.

In the case where more than one result was reported for an individual sample, the least technically acceptable results were not used as listed in the table below.

Sample	Analyte	Validation Action
LT-C-024 (2-4)RE CC-C-023 (6-8)RE CC-C-029 (8-10) CC-C-030 (8)	Lead	Do not use
CC-C-030 (10)	Arsenic Lead	Do not use Do not use

The validation findings were based on the following information.

Data Completeness

The data package was complete as defined under the requirements for the NYSDEC ASP category B laboratory deliverables.

Holding Times and Sample Preservation

All criteria were met.

Instrument Calibration

All criteria were met.

CRQL Standard Recoveries

All criteria were met.

Blank Results

Analytes were detected below the reporting limits in the instrument blank samples. The following table summarizes the contamination and validation actions taken.

Blank ID	Analyte	Level Detected	Action Level	Associated Samples
ICB/CCB	Lead	0.00340 mg/L	RL	CC-C-030 (8) (TCLP)
L				CC-C-030 (10) (TCLP)

Blank Actions for analytes detected below the reporting limit (RL).

If the sample result is < RL, report the result as nondetect (U) at the RL.

If the sample result is > RL or nondetect, no action is required.

Blank Actions for analytes detected above the RL.

If the sample result is < \tilde{RL} and < action level; report the result as nondetect (U) at the RL.

If the sample result is > RL and < action level; report the result as nondetect (U) at the reported value.

If the sample result is > action level or nondetect, no action is required.

No samples were qualified since the associated sample results were greater than the reporting limit.

No field blanks were identified in this SDG.

ICP ICS Results

All analytes were within control limits in the ICSA and ICSAB analyses.

MS/MSD Results

The laboratory performed MS and MSD analyses on samples CC-C-023 (6-8) and CC-C-023 (6-8)RE for arsenic and lead. All criteria were met.

Laboratory Duplicate Results

Laboratory duplicates were not associated with this sample set. Validation action was not required on this basis.

Field Duplicate Results

A field duplicate pair was not associated with this sample set. Validation action was not required on this basis.

Glen Isle, NYSDEC, Project Number: RWI1401

LCS/CRM Results

All criteria were met.

Serial Dilution Results

A serial dilution analysis was performed on samples CC-C-023 (6-8) and CC-C-023 (6-8)RE for arsenic and lead. All criteria were met.

Moisture Content

All criteria were met.

Detection Limits Results

No results were reported below the reporting limit (RL).

Due to high target analyte levels, select samples were analyzed at dilutions. The following table lists the sample dilutions which were performed and the results reported. RLs were elevated accordingly.

Sample	Metal Analysis Reported
CC-C-030 (10) CC-C-030 (8)RE	5-fold dilution due to high analyte level for Lead

In the case where more than one result was reported for an individual sample, the least technically acceptable results were not used as listed in the table below.

Sample	Analyte	Validation Action
LT-C-024 (2-4)RE	Lead	Do not use
CC-C-023 (6-8)RE		
CC-C-029 (8-10)		
CC-C-030 (8)		
CC-C-030 (10)	Arsenic	Do not use
	Lead	Do not use

Sample Quantitation Results

Calculations were spot-checked; no discrepancies were noted.

DATA VALIDATION QUALIFIERS

- U The analyte was analyzed for, but due to blank contamination was flagged as nondetect (U). The result is usable as a nondetect.
- J Data are flagged (J) when a QC analysis fails outside the primary acceptance limits. The qualified "J" data are not excluded from further review or consideration. However, only one flag (J) is applied to a sample result, even though several associated QC analyses may fail. The 'J' data may be biased high or low or the direction of the bias may be indeterminable.
- UJ The analyte was not detected above the reported sample quantitation limit. Data are flagged (UJ) when a QC analysis fails outside the primary acceptance limits. The qualified "UJ" data are not excluded from further review or consideration. However, only one flag is applied to a sample result, even though several associated QC analyses may fail. The 'UJ' data may be biased low.
- R Data rejected (R) on the basis of an unacceptable QC analysis should be excluded from further review or consideration. Data are rejected when associated QC analysis results exceed the expanded control limits of the QC criteria. The rejected data are known to contain significant errors based on documented information. The data user must not use the rejected data to make environmental decisions. The presence or absence of the analyte cannot be verified.

LDC #: 33666A4b VALIDATION COMPLETENESS WORKSHEET

SDG #: 480-74300-1 Cat B

Laboratory: Test America, Inc.

Date: 2/5/15
Page: _of__
Reviewer: ___
2nd Reviewer: ___

METHOD: Lead (EPA SW 846 Method 6010B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area	·	Comments
I.	Sample receipt/Technical holding times	AIA	
II.	Instrument Calibration	A	
111.	ICP Interference Check Sample (ICS) Analysis	A	
IV.	Laboratory Blanks	SW	
V.	Field Blanks	\mathcal{N}	
VI.	Matrix Spike/Matrix Spike Duplicates	SWA	MB/D (B/14, 15/16 74x Pb)
VII.	Duplicate sample analysis	N	, , , , , , , , , , , , , , , , , , , ,
VIII.	ICP Serial Dilution	<u> A</u>	
IX.	Laboratory control samples	AA	LOSD SRM
X.	Field Duplicates	N	
XI.	Sample Result Verification	A	all 7RL
XII	Overall Assessment of Data	SW	

Note:

A = Acceptable

N = Not provided/applicable SW = See worksheet ND = No compounds detected

R = Rinsate FB = Field blank D = Duplicate

TB = Trip blank EB = Equipment blank SB=Source blank OTHER:

	Client ID	Lab ID	Matrix	Date
1	LT-C-024 (2-4)	480-74300-1	Soil	01/15/15
2	LT-C-024 (2-4)RE	480-74300-1RE	Soil	01/15/15
3	CC-C-023 (6-8)	480-74300-2	Soil	01/15/15
4	CC-C-023 (6-8)RE	480-74300-2RE	Soil	01/15/15
5	CC-C-029 (8-10)	480-74300-4	Soil	01/15/15
6	CC-C-029 (8-10)RE	480-74300-4RE	Soil	01/15/15
7	CC-C-030 (8)	480-74300-5	Soil	01/15/15
8	CC-C-030 (8)RE	480-74300-5RE	Soil	01/15/15
9	CC-C-030 (10) Ph@Sx-highenelyte	480-74300-6	Soil	01/15/15
10	CC-C-030 (10) Phass - highanolyte CC-C-030 (10) RE Phass - highanolyte	480-74300-6RE	Soil	01/15/15
11	CC-C-030 (8) (TCLP)	480-74300-5(TCLP)	Soil	01/15/15
12	CC-C-030 (10) (TCLP)	480-74300-6(TCLP)	Soil	01/15/15
13	CC-C-023 (6-8)MS	480-74300-2MS	Soil	01/15/15
14	CC-C-023 (6-8)MSD	480-74300-2MSD	Soil	01/15/15
15	CC-C-023 (6-8)REMS	480-74300-2REMS	Soil	01/15/15
16	CC-C-023 (6-8)REMSD	480-74300-2REMSD	Soil	01/15/15
17				

LDC #: 3346A4b

VALIDATION FINDINGS WORKSHEET Sample Specific Element Reference

Page: _\ of _ Reviewer: _CR 2nd reviewer: _CM

All circled elements are applicable to each sample.

Sample ID Matrix	Target Analyte List (TAL)
1-8	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
9,10	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
11,12	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe,Pb) Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
ac:13-6	Al, Sb(As) Ba, Be, Cd, Ca, Cr, Co, Cu, Fe,(Pb)Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
	Analysis Method
ICP	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
ICP-MS	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
GEAA	Al Sh As Ba Be Cd Ca Cr Co Cu Fe Ph Mg Mn Hg Ni K Se Ag Na Tl V Zn Mo B Sn Ti

Comments:	Mercury by CVAA if performed

LDC #: 33666A4b

VALIDATION FINDINGS WORKSHEET PB/ICB/CCB QUALIFIED SAMPLES

Page: of
Reviewer: 02
2nd Reviewer: 5

METHOD: Trace metals (EPA SW 864 Method 6010B/6020/7000)

Soil preparation factor applied:_ Sample Concentration units, unless otherwise noted:

Associated Samples: 11, 12

		e. Mila		in Start all mi			Sample Identifi	cation		
Analyte	Maximum PB ^a (mg/L)	Maximum ICB/CCB ² (mg/L)		No Qualifiers (>RL)						
Pb		0.00340	RL							

Samples with analyte concentrations within five times the associated ICB, CCB or PB concentration are listed above with the identifications from the Validation Completeness Worksheet. These sample results were qualified as not detected, "U".

Note: a - The listed analyte concentration is the highest ICB, CCB, or PB detected in the analysis of each element.

LDC#: 33666 A4/5

VALIDATION FINDINGS WORKSHEET Overall Assessment of Data

Page:	of	7
5	~ .	

Reviewer: 2nd Reviewer: 5

METHOD: Trace Metals (EPA SW 846 Method 6010/6020/7000)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

All available information pertaining to the data were reviewed using professional judgement to compliment the determination of the overall quality of the data.

Y)N N/A

Was the overall quality and usability of the data acceptable?

$\underline{\smile}$					
#	Date	Sample ID	Finding	Associated Samples	Qualification
		2457		Pb	Do not use
				A5,75	Do not use
					\ /
			QConparable tor	all-choose his	her result (conservative approach)

Comments:				
	 ·			

LDC#: 33666AYh

VALIDATION FINDINGS WORKSHEET Initial and Continuing Calibration Calculation Verification

	Page:_	(_ _{of_}	1
	Reviewer:	02	
2nd	Reviewer:	Sh	_

METHOD: Trace metals (EPA SW 846 Method 6010/6020/7000)

An initial and continuing calibration verification percent recovery (%R) was recalculated for each type of analysis using the following formula:

%R = <u>Found</u> x 100 True

Where, Found = concentration (in ug/L) of each analyte <u>measured</u> in the analysis of the ICV or CCV solution True = concentration (in ug/L) of each analyte in the ICV or CCV source

					Recalculated	Reported	
Standard ID	Type of Analysis	Element	Found (µg/L)	True (wig/L)	%R	%R	Acceptable (Y/N)
ICU (1/19/15	ICP (Initial calibration)	As	0.3485	0,375	100	100	9
	ICP/MS (Initial calibration)						
	CVAA (Initial calibration)						
CV (1/19/15)	ICP (Continuing calibration)	Po	0,50536	0,500	105	105	7
	ICP/MS (Continuing calibration)			·			
	CVAA (Continuing calibration)						

Comments:				
		 	 	

LDC #: 3366A 4/2

VALIDATION FINDINGS WORKSHEET Level IV Recalculation Worksheet

	Page:_	of
	Reviewer:	a
2nd	Reviewer:	Su

METHOD: Trace Metals (EPA SW 846 Method 6010/6020/7000)

Percent recoveries (%R) for an ICP interference check sample, a laboratory control sample and a matrix spike sample were recalculated using the following formula:

 $%R = Found_x 100$ True

Where, Found = Concentration of each analyte measured in the analysis of the sample. For the matrix spike calculation,

Found = SSR (spiked sample result) - SR (sample result).

True = Concentration of each analyte in the source.

A sample and duplicate relative percent difference (RPD) was recalculated using the following formula:

 $RPD = \underline{[S-D]} \times 100$

Where, S = Original sample concentration

(S+D)/2

D = Duplicate sample concentration

An ICP serial dilution percent difference (%D) was recalculated using the following formula:

%D = I-SDR x 100

Where, I = Initial Sample Result (mg/L)

SDR = Serial Dilution Result (mg/L) (Instrument Reading x 5)

Sample ID	Type of Analysis	Element	Found/S/I (units) MS/KS	True / D / SDR (units)	Recalculated %R / RPD / %D	Reported %R / RPD / %D	Acceptable (Y/N)
ICSAB: 53	ICP interference check	A3	0.10304mg/	-0.1mg/	103	103	7
SRM	Laboratory control sample	Pb	335,097	153a	91.1	85.691.	3
13	Matrix spike	AS	(SSR-SR)	46.1	82	89	
1314	Duplicate	Pb	279,6916	391.8562	33	33	
Н	ICP serial dilution	Pb	7630758	- 289,738		10	

Comments: _	401,0138					
	 				 	

LDC #: 33466A45

VALIDATION FINDINGS WORKSHEET Sample Calculation Verification

Page: ____of__ Reviewer: ____

METHOD: Trace Metals (EPA SW 846 Method 6010/6020/7000)

Please Y N Y N Y N	N/A Have results N/A Are results w	ow for all questions answered "N". No been reported and calculated correct ithin the calibrated range of the instru- tion limits below the CRDL?	tly?		
/ Detect equati	ted analyte results for _ on:	55	were recalc	ulated and verified	using the following
RD FV In. Vol. Dil	tration = \frac{(RD)(FV)(Dil)}{(In. Vol.)} = Raw data conce = Final volume (m = Initial volume (m = Dilution factor	ntration I) I) or weight (G) Recalculati	on: $\frac{(L(50)(1))}{(0.76)} =$	538,8 mg	148
#	Sample ID	Analyte	Reported Concentration (୩୪୬/୯୪)	Calculated Concentration (MA (MA)	Acceptable (Y/N)
		Pb	93,9	93994,0	7
2	2 RE		79.3	72.3	
<u> </u>	IRE		265	263	
ч	5		239	239	
	GRE		416	916	
5	7		1780	7620	
	886	A A	68959	519	
6		As ét	13900	13900	
	10RE	Pto As	67,8	67.8	
	\ \ \0	ACPY		19900	
5	11 ras	120	68.9mgL	68.7mg/4	
<u> </u>	·		51.4 mg/L	31.110	
)					
				<u> </u>	
Note:_					

Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP:	HW-2 Revis	ion 13	Appendix A.l	Sept. 2006
			<u> </u>	YES NO N/A
A.I.I	Contract Comp Present?	liance Screenir	ng Report	
	ACTION:	If no, contac	et RSCC/PO.	
A.I.2	Record of Com	munication (fro	m RSCC)	•
	Present?			
	ACTION:	If no, reques	st from the RSCC.	
A.1.3	Sampling Trip R	Report		1
	Present a	nd complete?		<u></u>
	ACTION:	If no, contac	t RSCC/PO.	• .
A.I.4	Chain of Custod	lv/Samnle Traff	ic Report	
/ \		tyroampio rran	10 1102011	
	Present?			
	Legible?			
	Signature of present?	of sample custo	dian	
	ACTION: I	f no, contact RS	CC/WAM/PO.	
A.I.5	Cover Page	·		
	Present?			
	and the ver	er Page properly batim signed by r the manager's	the lab	
	on the Cove	nple identification er Page agree w on numbers on:		
	(a) Traffic F	Report Sheet?		

Standard Operating Procedure

USEPA Region 2

Evaluation of Metals Data for the Contract Laboratory Program

Data Assessment and Contract Compliance Review

SOP:	HW-2 Revision 13	Appendix A.1	Sept. 2006
	(b) Form I's?		YES NO N/A
	Is the number of sam Page the same as th samples on the Traff and the Regional Re (ROC) for the data	e number of ic Report sheet cord of Communication	[]
		ove, prepare og and contact RSCC/PO corrected Cover Page	
A.1.6	SDG Narrative, DC-1 & DC	2 Form	
	Is the SDG Narrative	present?	<u> </u>
	Is Sample Log-In She present and complete	•	<u> </u>
	Is Complete SDG Inversent and complete	entory Sheet(Form DC-2) ?	
	ACTION: If no, write in the Continuous Section Non-Compliance Section Narrative.	ract-Problems/ ection of the Data Review	
4.1.7 <u>F</u>	form I to XV		
A.1.7.1	Are all the Form I throul labeled with:	igh Form XV	
	Laboratory Name?		4
	Laboratory Code?		[] _/
	RAS/Non-RAS Case N	o.?	(<u></u>
	SDG No.?		[/]

Evaluation of Metals Data for the Contract Laboratory Program Data Assessment and Contract Compliance Review

SOP: HW-	2 Revision 13	Appendix A.1	Sept. 2006
			YES NO N/A
	Contract No.?		
A.1.7.2	ACTION: If no for any of the above, Contract Problem/Non-Color of the "Data Review Narral PO for corrected Form(s) for After comparing values on against the raw data, do an transcription errors exceed reported values on the Formation for the second seco	mpliance Section tive" and contact rom the laboratory. Forms I-IX ny computation/ 10% of the	
(a) a	all analytes analyzed by ICP-,	AES?	_ []
(b) a	all analytes analyzed by ICP-I	MS?	_ [] _
(c) N	Mercury?		_ U
(d) (Cyanide?		_ [] _/
If ye and	TION: s, prepare Telephone Record contact CLP PO/TOPO for th from the laboratory.		·
hard	Data shall not be validated with lelectronic copies of the as data for samples and QC sa	sociated	
4.1.8.1	Digestion/Distillation Log		
	stion Log for ICP-AES XII)present?		<u> </u>
_	stion Log for ICP-MS XII) present?		
_	stion Log for mercury n XII) present?		
	ation Log for cyanide n XII) present?		
Are p	H values for metals and		

Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP:	HW-2	Revision 13	Appendix A.1	Sept. 2006
	-			<u>YES NO N/A</u>
		reported for each		
	aqueou	s sample?		
		cent solids calculations		. /
	present	for soils/sediments?		
		paration dates present of		
	sample	preparation logs/bench s	sheets?	
		Distillation log must include weights used to obtain the reported re		•
A.1.8.2	2 ls real-time	the analytical instruments printouts present for		
		, .	•	
	ICP-AES	57		
	ICP-MS	?		
	Mercury'	?		
	Cyanide?	?		
	and instrunction	boratory bench sheets ument raw data printouts y to support all sample and QC operations:	5	
L	egible?			<u> </u>
P	roperly la	beled?		LX
		d samples, QC samples QC samples present on:		
D	igestion/[Distillation log?		∠
ln	strument	Printouts?		4

ACTION:

If no for any of the above questions in Section A.1.8.1 and Section A.1.8.2, write Telephone Record Log and contact TOPO/PO for re-submittal from the laboratory.

Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP: HW	-2 Revision 13	Appendix A	Sept. 2006
			YES NO N/A
(Exami	chnical Holding Times: (Aquine sample Traffic Reports and digestion mine the holding time from the sample paration date.)	n/distillation logs to	
A.1.9.1	Cyanide distillation(14 day	s)exceeded?	_ [] _
	Mercury analysis(28 days)	exceeded?	
	Other Metals analysis(180	days)exceeded?	[]
If you	TION: es, reject (R) and red-line non d flag as estimated (J)results a mple(s) was preserved proper	MDL even	
a list which be prothe n (Sub from	ddition to qualifying the data, of all samples and analytes hexceeded the holding times must repared. Report for each sample number of days that were exceeded, tract the sample collection date the sample preparation date).		
A.1.9.2	Is pH of aqueous samples	for:	
Meta	als Analysis ≤ 2?		
Cya	nide Analysis ≥ 12?		
If no	TION: for any of the above, flag detects as "R" and detects as "J	s .	
A.1.9.3 Is the	e cooler temperature ≤ 10 C°	?	<u> </u>
If cod	TION: oler temperature is >10 ℃,flag detects as "UJ" and detects as		
4.1.10 <u>Fina</u>	l Data Correctness - Form I		

A.1.10.1 Are Form I's for all samples

Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP:	HW-2	Revision 13	Appendix A.1		Sept. 2	2006
				YES	NO	N/A
	prese	nt and complete?			í <u> </u>	
	Log ar	DN: prepare Telephone Record and contact CLP PO/TOPO ttal from the laboratory.				
A.1.10		•	ation and transcription erro cle on each Form I all resu			
	1	s the calculation error les	ss than 10% of the correct	result? [/	Í	
		Are results on Form I's re MG/KG for soils)?	ported in correct units (ug/	/L for aqueous [and _]	
	A	are results on Form I'S re	ported by correct signific	cant figures? [<u></u>	
		are soil sample results on orrected for percent solic		[•
		re all "less than MDL" va the CRQLs and coded v	•	[.]	<u> </u>
	bı	re values less than the C ut greater than or equal to DLs flagged with "J"?		[_
		re appropriate contractuantrol and Method qualifie	•	[í	
	lf pr	CTION: no for any of the above	Log, and contact			
.1.10.3	ar sa or	o EPA sample identificating the corresponding laborable identification number the Cover Page, Form I the raw data?	oratory ers match	· . []		
	W	as a brief physical descri	ption			

Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP: HW-2	Revision 13	Appendix A.1	Sept. 2006		
			YES NO N	<u>/A</u>	
	of the samples before and digestion given on the Fo		<u> </u>		
	Was any sample result ou mercury/cyanide calibration or the ICP-AES/ICP-MS li diluted and noted on the F	on range near range	·	,	
	ACTION: If no for any of the above, the Contract-Problem/Nor Section of the Data Review	n-Compliance			
A.1.11 <u>Initia</u>	al Calibration				
A.1.11.1	Is a record of at least 2 po (A blank and a standard)c present for ICP-AES analy				
	Is a record of at least 2 po (a blank and a standard)calibra present for ICP-MS analys	ation	[]		
	Is a record of at least 5 po (a blank & 4 standards)presen		[]	_	
	Is a record of at least 4 po (a blank & 4 standards)present		[]	<u>/</u>	
	ACTION: If incomplete or no initial can was performed, reject (R) at the associated data (detection).	and red-line			
	Is one initial calibration sta at the CRQL level for cyan mercury?	[]	_		
	ACTION: If no, write in the Contract I Non-Compliance Section o Review Narrative.				
A.1.11.2	Is the curve correlation				

coefficient ≥ 0.995 for:

Standard Operating Procedure

USEPA Region 2
Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP: HW-	2 Revision 13 A	Appendix A.1	Se	Sept. 2006		
			YES	NO N	<u>/A</u>	
	Mercury Analysis?		[]			
					,	
	Cyanide Analysis?		[]			
	ICP-AES (more than 2 point (Calib.)?	[]		,	
	ICP-MS (more than 2 point of	calib.)?	ſĵ		. /	
	ACTION: If no, qualify the associated results > MDL as estimated non-detects as "UJ". NOTE: The correlation coefficient shall be calculated by the data validator using standard concentrations and the corresponding instrument response (eabsorbance, peak area, peak height,	"J" and	l1		- ₩	
A.1.12	Initial and Continuing Calibration	ation Verificatio	n- Form IIA			
A.1.12.1	Present and complete for ev metal and cyanide?	ery				
	Present and complete for IC and ICP-MS when both these were used for the same analy	methods	[]		_	
	ACTION: If no for any of the above, Telephone Record Log and confor re-submittal from the la	ntact PO/TOPO				
A.1.12.2	Was a Continuing Calibration Verification performed every 10 samples or every 2 hours whichever is more frequent?		[<u> </u>	/		
	ACTION: If no for any of the above, in the Contract-Problem/Non- Section of the Data Review N	-Compliance			·	
1.12.3	Was an ICV or a mid-range st distilled and analyzed with		f 1			

Evaluation of Metals Data for the Contract Laboratory Program Data Assessment and Contract Compliance Review

SOP: H	IW-2 Revision 13	Appendix A.1	Sept.	2006
			YES NO	N/A
	Section of the Dat	the above, write roblem/Non-Compliance and MDL as estimated (J).		
A.1.12.2	Circle on each Form IIA that are outside the con	•		
	Are ICV/CCVs within co	ntrol limits for:	,	
	Metals - 90-110%	R?		
	Hg - 80-120%R?	•	[]	
	Cyanide - 85-115%	R?	[]	
		between a previous technically ent technically acceptable CCV		
	if the ICV/CCV %R is be Qualify only positive resubetween 111-125%(121-red-line only detects if the recovery is CN). Reject (R) and red-	all detects and non-detects, tween 75-89%(65-79% for Hg; this(≥ MDL) as "J" if the ICV/CC'-135% for Hg;116-130% for CN) greater than 125% (135% for Holline all associated results (hits a less than 75%(65% for Hg;70%)	V %R is i. Reject (R) and lg; 130% for and non-	
	NOTE: For ICV that does not fall within to qualify all samples reported from			
A.1.12.3	Was the distilled ICV or standard for cyanide with limits (85-115%)?	· ·	[]	
	ACTION: If no, Qualify all cyanide	results > MDL as "J".		

A.1.13 CRQL Standard Analysis - Form IIB

A.1.13.1 For each ICP-AES run, was a CRI

Standard Operating Procedure

USEPA Region 2
Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP:	HW-2	Revisio	n 13		Appendix A	1.1			006	
	standa	L or MDL whard analyzed (Note:CRI : Ca, Fe, Mg	!? .s not req	uired for	. Al, Ba,		YES	<u>NO</u>	<u>N/A</u>	
		For each IC (CRQL or MDI analyzed for for the analy	when MDL : each mas	> CRQL) sta	andard		[]		√ .	
		For each me standard an	-	was a CR	QL		[]	.,	~	
		For each cya standard and		was a CR(QL		[]		<u>/</u>	
V 10	In the	larrative, information the affecte and non-detected ranges Analysis - Analysis - Analysis -	y in the Conce Section CLP Portion CLP Por	ontract Proon of the D O and flag detects <2 e ± CRQL	Pata Review g results PxCRQL)as J					
A.1.13.2	IC or	as a CRQL: V/ICB, befo nce every 20 e analytical	re the final analytical	CCV/CCI samples	B and in					
	lf r No	CTION: no, write in t on-Compliar ata Review	ce Section	of the	n/		·			
.1.13.3		rcle on each		•	!					

acceptance windows.

Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP: HV	V-2 Revision 13	Appendix A.1		006	
	Is the CRQL standard wi limits for:	thin control	YES NO	<u>N/A</u>	
	Metals(ICP-AES/ICP-MS)- 70 - 130%?			
	Mercury- 70 - 130%?		[]		
	Cyanide - 70 - 130%?		[]		
	ACTION: If no, flag detects <2xCRI non-detects as "UJ" if the recovery is between 50-6 detects <2xCRQL if the re 131% and ≤180%. If the re 150%, reject(R) and red-l detects < 2xCRQL, and flag to 2xCRQL and ICV/CCV. Redetects <2xCRQL and flag but < ICV/CCV if the recovery	CRQL standard 9%. Flag(J) only ecovery is between recovery is less than ine non-detects and ag (J) detects between reject and red-line only g (J)detects ≥ 2xCRQL		·	
	NOTE: 1.Qualify all field sample a previous technically at the CRQL standard and a analysis of the CRQL state. 2.Flag (J) or reject (R) a sample results on Form raw data are within the and the CRQL standard is acceptance windows. 3.The samples and the CRQL analyzed in the same analyzed.	acceptable analysis of subsequent acceptable andard only the final I's when Sample affected ranges outside the			
.1.14 <u>Init</u>	ial and Continuing Calibrat	ion Blanks - Form III			
.1.14.1	Present and complete for the instruments used for the metals and cyanide analys	ne ses?			
	Was an initial Calibration E analyzed after ICV?	siank	[]		
	Was a continuing Calibrati analyzed after every CCV 10 samples or every 2 hou is more frequent?	and every			
	Were the ICB & CCB value reported on Form III and fla				

Evaluation of Metals Data for the Contract Laboratory Program Data Assessment and Contract Compliance Review

SOP: HW-	2 Revision 13	Appendix A.1	Sept. 2006
	using MDLs from direct an Method "NP1")? (Check Form III against		YES NO N/A
	ACTION: If no, inform CLP PO/TOP in the Contract-Problems/N Section of the "Data Revie	Non-Compliance	
A.1.14.2	Circle with red pencil on ea all Calib. Blank values that		
	<u>≥</u> MD	DL but ≤ CRQL	
	> CR	QL	
A.1.14.2.1	When MDL < CRQL, is any value ≥ MDL but ≤ CRQL?	/ Calib. Blank	
	ACTION: If yes, change sample resu but ≤ CRQL to the CRQL w Do not qualify non-detects.		•
	hen MDL < CRQL, is any Ca llue > CRQL?	lib. Blank	
	ACTION: If yes, reject (R) and red line associated sample results > but <icb blank="" ccb="" detects="" result=""> ICB/CCB blank va < 10xICB/CCB value. Chang results > MDL but < the CROwith a "U".</icb>	CRQL . Flag as "J" llue but ge the sample	
	any Calibration Blank value low the negative CRQL?		
	ACTION: If yes, flag (J) as estimated a associated sample results ≥ <10xCRQL.		

NOTE:

For ICB that does not meet the technical QC Criteria, apply the action to all samples

Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP: H	∃W-2	Revision 13	Appendix A.1	Se	ept. 20	006
	2. For C apply (previou a subs	ed from the analytical run. CBs that do not meet the technic the action to all samples analyzer us technically acceptable analysis equent technically acceptable an the analytical run.,	d between a is of CCB and	YES	<u>NO</u>	N/A
A.1.15	1	Preparation Blank - NOTE: The Preparation Blan is the same as the calibr	nk for mercury			
A.1.15	Ç	Was one Preparation with and analyzed f	for:			
	Ē	Each Sample Deliver Bach batch of the S Bigested/distilled? Bach matrix type?	DG samples			
		all instruments use and cyanide analyse				
	I a p	CTION: f no for any of th s estimated (J) al ositive data <10xM reparation Blank w	l the associated DL for which the			
	If th an	OTE: only one blank was anal an 20 samples, then the alyzed are not estimated ditional samples must be	first 20 samples		~	
.1.15.		rcle with red penci L Prep. Blank value	il on each Form III es that are:			
		≥ MDL but ≤	≤ CRQL, and			
		> CRQL				/
.1.15.2		nen MDL < CRQL, is alue <u>></u> MDL but <u><</u> CR	any preparation blank RQL?		[]	

If yes, change sample result ≥ MDL

Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP: HW-	-2 Revision 13	Appendix A.1	S	ept. 20	0.06
			<u>YES</u>	NO	N/A
	but \leq CRQL to CRQL with	n a "U".			
A.1.15.2.	2 When the MDL \leq CRQL, is Blank value greater tha			. [1
	If yes, is the Prep. Bl greater than the value Field Blank collected a the SDG samples?	of the associated		[_1
	If yes, is the lowest contract that analyte in the assolues than 10 times the Blank value?	ociated samples		[
	ACTION: If yes, reject (R) and results greater to the prep. Blank value detects > Prep. Blank value the sample result > Main the CRQL-U.	than the CRQL but less ne. Flag as "J" alue but <10xPrep.Blan	s nk.		
	If the Prep. Blank value analyte value in the Fie qualify the sample resul Prep. Blank criteria.	ld Blank, do not	ne		
	NOTE: Convert soil sample result to mg wet weight basis to compare with Prep. Blank result on Form III.	/Kg on the soil			
A.1.15.2.3	Is the Prep. Blank conce below the negative CRQL?	ntration	[_	<u>1</u> .	
	ACTION: If yes, flag (J) all asso sample results less than Qualify non-detects as es	10xCRQL.			
A.1.15.2,4	When the MDL is greater to CRQL, is the preparation concentration on Form III than two times the MDL?	blank		[]	

ACTION:

Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP: HW-	2 Revision 13	Appendix A.1	S	Sept. 20	06
			YES		N/A
	If yes, reject (R) and repositive sample results traw data less than 10 times Preparation Blank value.	with sample			
A.1.16	<pre>ICP-AES/ICP-MS Interferer NOTE:Not required for CN, Hg,</pre>		(S) - Fo	rm IV	
A.1.16.1	Present and complete?		[]		
	Was ICS analyzed at the band end of each analytica once for every 20 analyti	l run, and	[]		
	Was ICS analyzed at the b the ICP-MS analytical run	-			
	ACTION: If no, flag as estimated sample results.	(J) all			
1.16.2	ICP-AES Method				
.1.16.2.1	ICSA Solution: For ICP-AES, are the ICSA values within the control of the true/established mean	limits \pm of CRQL		·	
	If no for any of the above sample concentration of All or Mg in the same units (a greater than or equal to concentration in the ICSA Form IV?	l, Ca, Fe, ug/L or MG/KG) its respective	[]		
	ACTION: If yes, apply the following all samples analyzed between technically acceptable and ICS and a subsequent technicallysis of the ICS in the	een a previous alysis of the nically acceptable			

Flag (J) as estimated only sample results $\geq MDL$

Evaluation of Metals Data for the Contract Laboratory Program

Data Assessment and Contract Compliance Review

SOP: HW-2 Revision 13 Appe

Appendix A.1

Sept. 2006

<u>N/A</u>

<u>NO</u>

for which the ICSA "Found" value is greater than (True value+CRQL). Do not qualify non-detects. If the ICSA "Found" value is less than (True value-CRQL), flag non-detects as "UJ" and detects as "J".

A.1.16.2.3 ICSAB Solution

For ICP-AES, are all analyte results in ICSAB within the control limits of 80-120 of the true/established mean value?

If no for any of the above, is the sample concentration of Al, Ca, Fe, or Mg in the same units (ug/L or MG/KG) greater than or equal to its respective concentration in the ICSAB Solution on Form IV?

ACTION:

If yes, apply the following action to all samples analyzed between a previous technically acceptable analysis of the ICS and a subsequent technically acceptable analysis of the ICS in the analytical run:

Flag (J) as estimated those associated sample results ≥ MDL for which the ICSAB analyte recovery is greater than 120% but ≤ 150%. If the ICSAB recovery falls within 50-79%, qualify sample results ≥ MDL as "J" and non-detects as "UJ". Reject (R) and red-line all sample results (detects & non-detects) for which the ICSAB analyte recovery is less than 50%. If the recovery is above 150%, reject (R) and red-line only positive results.

A.1.16.3 ICP-MS Method

A.1.16.3.1 ICSA Solution:

For ICP-MS, are the ICSA "Found" analyte values within the control limits of ±CRQL of the true/established mean value?

ACTION:

If no, apply the following action to all samples reported from the analytical run:

Flag (J) as estimated only sample results \geq MDL if the ICSA "Found" value is greater than (True value+CRQL). Do not qualify non-detects. If the ICSA "Found" value is less than (True value-CRQL), flag the associated sample detects as "J" and non-detects as "UJ".

Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP: HW-2	Revision 13	Appendix A.1	S	ept. 2	2006
			YES	NO	N/A
A.1.16.3.3	B ICSAB Solution For ICP-MS, are all a in ICSAB within the o 80-120% of the true/e value, whichever is g	ontrol limits of stablished mean	[]		_
	ACTION: If no, apply the foll samples reported from				
	sample results > MDL. those all sample determined the ICSAB analysis	for which the ICSAB reater than 120% but recovery falls within timated the associated Reject (R) and red-line cts and non-detects for te recovery is less than is above 150%, reject (R)			
A.1.17		y: Pre-Digestion/Pre-Disti a,Mg,K,and Na(both matrices);			
4.1.17.1	Was Matrix Spike analy	vsis performed:			
	For each matrix type?				**********
	For each SDG?		$[\underline{\hspace{1cm}}]$		
	On one of the SDG samp	oles?			
	For each concentration (i.e., low, med., high)				
	For each analytical Me (ICP-AES, ICP-MS, Hg, C				
	Was a spiked sample pr analyzed with the SDG		[_X .		
	ACTION: If no for any of the a estimated(J)all the po for which a spiked sam analyzed.	sitive data			
·	NOTE:				

If more than one spiked sample were analyzed for one SDG, then qualify the associated data based on the worst spiked sample analysis.

Standard Operating Procedure

USEPA Region 2
Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP: HW-	-2 Revision 13 Ap	ppendix A.1	S	Sept. 20	06
			YES	<u>NO</u>	N/A
A.1.17.2	Was a field blank or PE sample for the spiked sample analysis			1	
·	ACTION: If yes, flag (J) as estimated data of the associated SDG sar which field blank or PE sample for the spiked sample analysis	mples for e was used			
A.1.17.3	Circle on each Form VA all spirecoveries that are outside the control limits (75-125%) that sample concentrations less that times the added spike concentrations	ne have un four			
	Are all recoveries within the control limits when sample concentrations are less than of equal to four times the spike concentrations? NOTE: Disregard the out of control spike recoveries for analytes whose concentrations are greater than or equal to four times the spike added.	r	(<u>V</u>)	_	
	Are results outside the contro (75-125%) flagged with Lab Qual on Form I's and Form VA?		[]		\checkmark
	ACTION: If no for any of the above, writhe Contract - Problems/Non-Consection of the Data Review Narr	mpliance			
À.1.17.4	Aqueous				
	Are any spike recoveries:				
	(a) less than 30%?				
	(b) between 30-74%?				
	(c) between 126-150%?				
	(d) greater than 150%?				•
	ACTION: If the matrix spike recovery is 30%, reject (R) and red-line all aqueous data (detects & non-det between 30-74%, qualify all ass aqueous data > MDL as "J" and n	associated ects). If ociated			

Evaluation of Metals Data for the Contract Laboratory Program Data Assessment and Contract Compliance Review

SOP: HW-	2 Revision 13	Appendix A.1	St	ept. 2006	
	as "UJ". If between 126-150 all data > MDL as "J". If	greater than 150%,	YES	<u>NO N/A</u>	
	reject (R) and red-line all		ADL.		
	(NOTE:Replace "N" with "J", "	R" as appropriate.)			
A.1.17.5	Soil/Sediment	•			
	Are any spike recoveries:				
	(a) less than 10%?				
	(b) between 10-74%?				
	(c) between 126-200%?		-	[
	(d) greater than 200%?				
	ACTION: If yes for any of the above as follows:	, proceed			
	If the matrix spike recover than 10%, reject (R) and red associated data (detects & if between 10-74%, qualify a data > MDL as "J" and non-d if between 126-200%, flag (data > MDL as "J" If greate (R) and red-line all associated (NOTE: Replace "N" with "J" or	-line all non-detects); ll associated etects as "UJ"; J) all associated r than 200%, reject ated data > MDL.			
1.18	Lab Duplicates) - Form VI	(ms/msn)			
.1.18.1	Was the lab duplicate analys	sis performed:)		
	For each SDG?		(
	On one of the SDG samples?		$[\underline{\hspace{1cm}}]$		
	For each matrix type?		(\angle)		
	For each concentration range (low or med.)?	} .			
	For each analytical Method (ICP-AES/ICP-MS,Hg,CN)Used?			·	
	Was a lab duplicate prepared analyzed with the SDG sample				

Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP: HW	-2 Revision 13	Appendix A.1	Sept	. 2006 .
				IO N/A
	ACTION: If no for any of the a estimated all the SDG (detects & non-detects duplicate analysis was	sample results s) for which the lab		
	NOTE: If more than one lab duplic were analyzed for an SDG, the associated samples base worst lab duplicate analysi	then qualify ed on the		
A.1.18.2	Was a Field Blank or P for the Lab Duplicate	-	(,	<u>/</u> _
	ACTION: If yes, flag as estima SDG sample results (hi for which Field Blank used for duplicate ana	ts & non-detects) or PE sample was		
A.1.18.3	Circle on each Form VI that are:	all values		
	RPD > 20%, or			
	Absolute Difference > 0	CRQL		
	Are all values within of limits (RPD $\leq 20\%$ or ald difference $\leq \pm \text{CRQL}$)?		<u> </u>	·
	If no, are all results control limits flagged (Lab Qualifier) on Form all Form I's?	with an "*"	[}	
	ACTION: If no, write in the Con Non-Compliance Section Review Narrative.			
	NOTE: The laboratory is not require report on Form VI the RPD who both values are non-detects.			·
1.1.18.4	Aqueous			

A.1.18.4.1 When sample and duplicate values are both

 \geq 5xCRQL (substitute MDL for CRQL when MDL > CRQL),

Evaluation of Metals Data for the Contract Laboratory Program Data Assessment and Contract Compliance Review

SOP: HW-2	Revision 13	Appendix A.1		Sept. 20	006
		•	YES	NO	N/A
	is any RPD > 20% but <	100%?		[]	
	is any RPD ≥ 100%?			[]	
	ACTION: If the RPD is > 20% but flag (J) as estimated to sample data > CRQL. If > 100%, reject (R) and associated sample data (NOTE:Replace "*" with "J"	the associated the RPD is red-line the \geq CRQL.			
A.1.18.4.2	When the sample and/or <5xCRQL (substitute MDL : is the absolute differe and duplicate values:	for CRQL when MDL >CRQL),			
	> ± CRQL?			[]	
	> ± 2xCRQL?			[]	
	calculate the absolute dif	he associated t < 5xCRQL as "J" . If the absolute reject (R) and ated non-detects 5xCRQL.	RQL		
1.18.5	Soil/Sediment				
	When sample and duplicat are both \geq 5xCRQL (substicated CRQL),			/	-
	is any RPD \geq 35% but $<$ 1	.20%?		· []	
	is any RPD <u>></u> 120%?			(<u>\(\lambda\)</u>)	
	ACTION: If the RPD is > 35% and (J) as estimated the ass				

Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP: HW-2 Revision 13

Appendix A.1

Sept. 2006

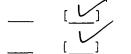
X F.

NO N/A

data \geq CRQL. If the RPD is \geq 120%, reject (R) and red-line the associated sample data \geq CRQL.

 $> \pm 2 \times CRQL$?

 $> \pm 4 \times CRQL$



ACTION:

If the absolute difference is > 2 x CRQL, flag all the associated sample results \geq MDL but < 5xCRQL as "J" and non-detects as "UJ". If the absolute difference is > 4xCRQL, reject (R) and red-line all the associated non-detects and detects \geq MDL but <5xCRQL.

NOTE:

- Replace "*" with "J", "UJ" or "R" as appropriate.)
- If one-value is >CRQL and the other value is non-detect, calculate the absolute difference between the value > CRQL and the MDL, and use this difference to qualify sample results.

A.1.19 Field Duplicates

Aqueous Field Duplicates

A.1.19.1 Was an aqueous Field Duplicate pair collected and analyzed?
(Check Sampling Trip Report)

ACTION:

If yes, prepare a Form (Appendix A.4) for each aqueous Field Duplicate pair. Report the sample and Field Duplicate results on Appendix A.4 from their respective Form I's. Calculate and report RPD on Appendix A.4 when sample and its Field Duplicate values are both > 5xCRQL. Calculate and report the absolute difference on Appendix A.4 when at least one value (sample or duplicate) is <5xCRQL. Evaluate the aqueous Field Duplicate analysis in accordance with the

Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP: HW-	2 Revision 13	Appendix A.1		Sept. 20	06
			YES		N/A
	QC criteria stated in S	ections A.1.19.2 and A.	1.19.3.		
	NOTE: 1. Do not transfer "*" from 2. Do not calculate RPD when 3. Substitute MDL for CRQL wh 4. If one value is >CRQL and non-detect, calculate the between the value > CRQL a this the criteria to qualit	both values are non-detects. en MDL > CRQL. the other value is absolute difference nd the MDL, and use			
A.1.19.2	Circle all values on the for Field Duplicates the			,	
	RPD > 20% or				
	Difference > \pm CRQL				
	When sample and duplicate both >5xCRQL (substitute MMDL > CRQL),				
	is any RPD ≥ 20%?			[]	
	is any RPD ≥ 100%?			[]	_
	ACTION: If the RPD is >20% but < the associated sample an results > CRQL. If the R and red-line only the as Field Duplicate result >	d its Field Duplicate PD is \geq 100%, reject(R) sociated sample and its			
A.1.19.3	When the sample and/or d <5xCRQL (substitute MDL fois the absolute differen and duplicate:	or CRQL when MDL >CRQL),			
	> ± CRQL?			[]	
	> ± 2 x CRQL?			()	_
	ACTION: If the absolute difference	ce is > CRQL,			

If the absolute difference is > CRQL, flag detects > MDL but < 5xCRQL as "J" and non-detects as "UJ". If the difference is > 2xCRQL, reject (R) and red-line non-detects

Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP: HW-	2 Revision 13	Appendix A.1	٠ ج	Sept. 2	.006
	and results > MDL but and its Field Duplica	<5xCRQL of the sample te.	<u>YES</u>	<u>NO</u> .	<u>N/A</u>
	Soil/Sediment Field	Duplicates			
A.1.19.4	Was a soil field dupl collected and analyze (Check Sampling Trip Rep	d?	[]	_	· —
	ACTION: If yes, for each soil pair proceed as follow				
	pair. Report on Append Field Duplicate result respective Form I's. (sample and its duplicate than 5xCRQL. Calculate absolute difference who (sample or duplicate) if Field Duplicate analys		when . ter e		
	NOTE: 1. Do not transfer "*" from 2. Do not calculate RPD whe 3. Substitute MDL for CRQL w 4. If one value is >CRQL and value is non-detect, calc absolute difference betwee value > CRQL and the MDL, the criteria to qualify the	en both values are non-detects when MDL > CRQL. If the other culate the een the and apply		·	
.1.19.5	Circle on each Appendix values that have:	x A.4 all			•
	RPD \geq 35%, or Difference When sample and duplication are both \geq 5xCRQL (subscript CRQL when MDL > CRQL),	ate values			
	is any RPD ≥ 35% but <	120%?		[]	
	is any RPD ≥ 120%?			[]	

If the RPD is \geq 35% but < 120%,

Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP: HW-2	Revision 13	Appendix A.1	S	ept. 20	06
		cate results	<u>YES</u>	ЙŌ	N/A
A.1.19.6	<5xCRQL (substitute)	/or duplicate value(s) MDL for CRQL when MDL > CRQL), ference between sample :			
	$> \pm 2 \times CRQL$?			[]	
	> <u>+</u> 4 × CRQL?			[]	_
	Sample and its Field but <5xCRQL as "J" a If the difference is red-line non-detects	ference is > 2xCRQL, flag d Duplicate resuts <u>></u> MDL and non-detects as "UJ". s >4xCRQL, reject(R) and s and detects <u>></u> MDL but le and its Field Duplicate.			
4.1.20	Laboratory Control S	Sample (LCS) - Form VII			
A.1.20.1	Was one LCS prepared	l and analyzed for:			
	Each SDG?	•			
	Each matrix type?				
	Each batch samples d For each Method(ICP- used?			· ·	
;	Was an LCS prepared the samples? ACTION: If no for any of the Telephone Record Log CLP PO or TOPO for s LCS results. Flag (James the data for which a smalyzed.	above, prepare and contact ubmittal of the) as estimated all			
-					

If only one LCS was analyzed for

Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP: HW-	2 Revision 13 A	ppendix A.1		Sept. 2	006
	more than 20 samples, then the firs 20 samples analyzed are not flagged but all additional samples must be qualified (J).		YES	NO	<u>N/A</u>
A.1.20.2	Aqueous LCS				
	Circle on each Form VII the L recoveries outside control li				
	NOTE: 1.Use digested ICV as LCS for 2.Use distilled ICV as LCS for	= = = = = = = = = = = = = = = = = = = =			
	Is any LCS recovery:				
	Less than 50%?			[]	
	Between 50% and 79%?			[]	
	Between 121% and 150%?			[]	
	Greater than 150%?		 .	[]	
	ACTION: If the LCS recovery is less the reject (R) and red-line all assample data (detects & non-deta recovery between 50-79%, flass "J" all non-detects as "UJ" recovery is between 121-150%, detects as "J". if the recover than 150%, reject (R) and red-	sociated ects); for g detects . if the LCS flag only y is greater			
	G.141 x gg				
A.1.20.3	Solid LCS				
	If an analyte's MDL is equal to greater than the true value of disregard the "Action" below for analyte even though the LCS is control limits.	LCS, or that			
	Is the LCS "Found" value greate than the Upper Control Limit reported on Form VII?	r			

ACTION:

Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP: HW-	Revision 13 A	ppendix A.1	S	ept. 20	06
	If yes, flag (J) all the asso detects > MDL as estimated (2		<u>YES</u>	<u>NO</u>	N/A
	Is the LCS "Found" value lower than the Lower Control Limit reported on Form VII? ACTION: If yes, flag detects as "J" a non-dectes as "UJ".	er			
A.1.21	ICP-AES/ICP-MS Serial Dilut NOTE: Serial dilution analysis is recomben the initial concentration is ex- greater than 50 x MDL.	quired only			
A.1.21.1	Was a Serial Dilution analysi performed:	s			
	For each SDG?				
	On one of the SDG samples?		[]		·
	For each matrix type?				 -
	For each concentration range (low or med.)?				
	Was a Serial Dilution sample analyzed with the SDG samples?		[]		
	ACTION: If no for any of the above, flas estimated (J) detects > MDI all the SDG samples for which ICP Serial Dilution Analysis who performed.	of the			,
A.1.21.2	Was a Field Blank or PE sample for the Serial Dilution Analys				
	ACTION: If yes, flag as estimated (J) MDL of all the SDG samples	detects			
A.1.21.3	Circle on Form VIII the Percen	t Differences			

(%D) between sample results and its dilution results that are outside the control limits \pm 10%

Standard Operating Procedure

USEPA Region 2
Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP: HW	7-2 Revision 13	Appendix A.1	Sep	t. 2006
	when initial concentr	ations > 50 x MDLs.	YES	NO N/A
	Are results outside t limits flagged with a on Form VIII and all	n "E"(Lab Qualifier)	[]	
	<u>ACTION:</u> If no, write in the C Non-Compliance Section Review Narrative.			
A.1.21.4	Are any %D values:			
	> 10%?			
	≥ 100%?		***************************************	
		g (J) as estimated swhose raw data > MDL; reject (R) and red-line		
	(NOTE:Replace "E" with "	J" or "R" as appropriate.)		
A.1.22	Total/Dissolved or Ino	rganic/Total Analytes		
A.1.22.1	Were any analyses perf dissolved as well as t on the same sample(s)? Were any analyses perf inorganic as well as to on the same sample(s)?	otal analytes ormed for	(_	
	ACTION: If yes, prepare a Form to compare the different dissolved (or inorganic analyte concentrations difference on Appendix of the total analyte on the following condition (1) The dissolved (or in is greater than total (2) greater than or equal	nces between c) and total Compute each A.5 as a percent aly when both of as are fulfilled: corganic) concentration concentration, and		
A.1.22.2	Is any dissolved (or in concentration greater total concentration by	han its	1	1

Evaluation of Metals Data for the Contract Laboratory Program Data Assessment and Contract Compliance Review

SOP: HW-2	Revision 13	Appendix A.1	Se	ept. 2006
			YES	NO N/A
A.1.22.3	Is.any dissolved(or i concentration greater total concentration b	than its		
	and total concentrati	th dissolved/inorganic ons as estimated. If e than 50%, reject (R)		
A.1.23	Field Blank - Form I NOTE: Designate "Field	Blank" as such on Form I		
A.1.23.1	Was a Field/Rinsate Ba and analyzed with the		[]	
	If yes, is any Field/Rabsolute value of an agreater than its CRQL			[]
	If yes, circle the Figon Form I that is great CRQL, (or 2 x MDL when MDL	ater than the		
	Is any Field Blank val than CRQL also greater Preparation Blank valu	than the		
	If yes, is the Field E (> CRQL and > the prepalready rejected due to criteria?	o. blank value)	[)	

ACTION:

If the Field Blank value was not rejected, reject all associated sample data (except the Field Blank results) greater than the CRQL but less than the Field Blank value. Reject on Form I's the soil sample results whose raw values in ug/L in the instrument printout are greater than the CRQL but less than the Field Blank value in ug/L. Flag as "J" detects between the Field Blank value and 10xField Blank value. If the sample result > MDL but < CRQL, replace it with CRQL-U.

If the Field Blank value is less than the

Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP: HW	-2 Revision 13	Appendix A.1	Sept.	2006
	Prep.Blank value, do not q	ualify the sample	YES NO	N/A
	results due to the Field B			
	NOTE: 1. Field Blank result previously due to other criteria cannot produced to the contract of the contract	_		
	2. Do not use Rinsate Blank associate soils to qualify water sample:			
A.1.24	Verification of Instrumenta	al Parameters - For	TM IX, XA, XB,	<u>KI</u>
A.1.24.1	Is verification report pres	sent for:		•
	Method Detection Limits (Fo	orm IX-Annually)?	(<u></u>)	-
	ICP-AES Interelement Correct (Form XA & XB -Quarterly)?	tion Factors	<u> </u>	-
	ICP-AES & ICP-MS Linear Ran (Form XI-Quarterly)?	ges	<u> </u>	
	ACTION: If no, contact CLP PO/TOPO submittal from the laborato			
A.1.24.2	Method Detection Limits - Fo	rm IX		
A.1.24.2.	l Are MDLs present on Form IX	for:		·
	All the analytes?		(<u></u>	
	All the instruments used?			
	Digested and undigested samples and Calib.Blanks?		<u>_</u>	
	ICP-AES and ICP-MS when both instruments are used for the same analyte?			_
	ACTION: If no for any of the above, Telephone Record Log and con PO/TOPO for submittal of the the laboratory. Report to CL write in the Contract Proble Non-Compliance Section of th Narrative if the MDL concent	tact CLP MDLs from P PO and ms/ e Data Review		

less than % CRQL.

Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP: HW-2	Revision 13	Appendix A.1	Se	pt. 2006
			YES	NO N/A
A.1.24.2.2	Is MDL greater than for any analyte?	the CRQL		
	If yes, is the analyt on Form I greater th the sample analyzed whose MDL exceeds CR	an 5 x MDL for on the instrument	[]	
·	ACTION: If no, flag as estimated values less than five the analyte whose MDN	e times MDL for		
A.1.24.3	Linear Ranges - Form	ΧΙ		
A.1.24.3.1	Was any sample result the high linear range or ICP-MS?			
	Was any sample result the highest calibrati for mercury or cyanic	ion standard		
	If yes for any of the the sample diluted to result reported on Fo	o obtain the	[]	
•	ACTION: If no, flag (J) as es affected detects $(\geq M)$ on Form I.			
A.1.25	ICP-MS Tune Analysis	- Form XIV		
	Was the ICP-MS instru tuned prior to calibr		()	
	ACTION: If no, reject (R) and sample data for which performed.			
	Was the tuning soluti or scanned at least f consecutively?		[]	
	Were all the required spanning the analytic present in the tuning	al range	[]	
7	Was the mass resoluti	on within		•

Evaluation of Metals Data for the Contract Laboratory Program Data Assessment and Contract Compliance Review

SOP: HW-1	2 Revision 13	Appendix A.1	. Sept. 2006
<u> </u>			YES NO N/A
0.1 amu 1	for each isotope in t tuning solution?	che	· _ ·
	Was %RSD less thar isotope of each ar tuning solution?		
		associated with that "J", and all non-detects	S .
A.1.26	ICP-MS Internal St	andards - Form XV	
A.1.26.1	Were the Internal to all the samples samples and calibr (except the Tuning	and all QC ation standards	
	Were all the targe masses bracketed by of the five intern	y the masses	[<u>·</u>]
	(detects & non-dete standards were used the analyte masses,	es, reject (R) and ssociated sample data ects). If internal did not cover all reject (R) and red-linesults not bracketed by	ne
A.1.26.2	Was the intensity of Standard in each sa of the intensity of Standard in the cal	mple within 60-125% the same Internal	
		inal sample diluted Standard added and the	
	Was the %RI for the within the acceptan	two fold diluted sample ce limits (60-125%)?	e. []
	as "J" and non-dete	e above, flag detects cts "UJ" of all the c masses between the	
	atomic mass of the	internal standard lighte	er

Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP:	HW-2	Revision 1	L3	Appendix A.2		Sept. 2006
than	the a	atomic ma	ss of the i	dard, and the nternal standard he ternal standard.	eavier	
A.1.	27	Percent S	olids of Se	diments		
A.1.	27.1	Are perce	nt solids in	n sediment(s):		
		< 50%?				[
		non-detect	ts of a samp	stimated (J) all de ple that has percen isture content greate	t solids	
		Flag(J) only that were no	y the sample root previously : C QC criteria.			
Tnor	cani	a Data P	eview Nar	rativo		
11101	<u> </u>	c Data K	EVIEW HAI	<u> </u>		
Case#	:		Sit	:e:	Matrix: S	Soil
SDG#			La	b:	W	ater
Sampl	ing Te	eam:	R	eviewer:	Ot:	her
A.2.1	The				n red by the d	ata validator and must
	J -		This flag i	ndicates the resul	t qualified as	estimated
	R and	Red-Line -	The red-li	ned data are known	to contain sig	ndicates unusable value. gnificant errors based or d by the data user.
	υ -			validation qualifie associated blank i		
	Fully	Usable Data	- The r usabl		carry "J" or	"red-line" are fully
			1 6 1			

A.2.2 <u>Laboratory Qualifiers</u>:

The CLP laboratory applies a contractual qualifier on all

33666-Glen Cove-10 Garvies Point Road

SDG: 480743001

Analytical Method SW6	010C											
Sample D	Lab Sample ID	Chemical Name	Anal Date	Result	Report	Detect	Lab Qual	Val Qual	Final qual	RL	MDL_	Units
4802233061A	4802233061A	LEAD	1/19/2015		Yes	N	U		U	5.1	0.25	
4802233061A	4802233061A	ARSENIC	1/19/2015		Yes	N	U		U	10.3	0.41	
4802236661A	4802236661A	LEAD	1/21/2015		Yes	N	U		υ	5.0	0.24	
4802236661A	4802236661A	ARSENIC	1/21/2015		Yes	N	U		υ	10.0	0.40	
4802243541F	4802243541F	LEAD	1/29/2015		Yes	N	U		U	0.010	0.0030	
4802248292A	4802248292A	LEAD	1/29/2015		Yes	N	U		U	0.010	0.0030	
CC-C-023 (6-8)-20150115	480-74300-2	LEAD	1/19/2015	267	Yes	Υ				5.9	0.28	mg/kg
CC-C-023 (6-8)-20150115	480-74300-2	LEAD	1/21/2015	265	No	Υ				5.7	0.27	mg/kg
CC-C-029 (8-10)-20150115	480-74300-4	LEAD	1/19/2015	239	No	Y				6.4	0.31	mg/kg
CC-C-029 (8-10)-20150115	480-74300-4	LEAD	1/21/2015	416	Yes	Υ				6.2	0.30	mg/kg
CC-C-030 (10)-20150115	480-74300-6	ARSENIC	1/19/2015	51.9	No	Υ				12.2	0.49	mg/kg
CC-C-030 (10)-20150115	480-74300-6	LEAD	1/19/2015	13900	No	Υ				30.5	1.5	mg/kg
CC-C-030 (10)-20150115	480-74300-6	ARSENIC	1/21/2015	67.8	Yes	Υ				11.9	0.48	mg/kg
CC-C-030 (10)-20150115	480-74300-6	LEAD	1/22/2015	19900	Yes	Υ				29.8	1.4	mg/kg
CC-C-030 (10)-20150115	480-74300-6	LEAD	1/29/2015	51.4	Yes	Y				0.010	0.0030	mg/l
CC-C-030 (8)-20150115	480-74300-5	LEAD	1/19/2015	1780	No	Υ				5.7	0.27	mg/kg
CC-C-030 (8)-20150115	480-74300-5	LEAD	1/21/2015	8620	Yes	Υ				6.2	0.30	mg/kg
CC-C-030 (8)-20150115	480-74300-5	LEAD	1/29/2015	68.9	Yes	Υ				0.010	0.0030	mg/l
LT-C-024 (2-4)-20150115	480-74300-1	LEAD	1/19/2015	93.9	Yes	Υ				5.7	0.28	mg/kg
LT-C-024 (2-4)-20150115	480-74300-1	LEAD	1/21/2015	72.3	No	Υ				5.6	0.27	mg/kg

LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

Posillico Consulting 1750 New Highway Farmingdale, NY 11735 ATTN: Mr. Ellis Koch February 11, 2015

SUBJECT: Glen Isle, Data Validation

Dear Mr. Koch,

Enclosed are the final validation reports for the fraction listed below. These SDGs were received on February 6, 2015. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project #33693:

SDG # Fraction

480-73951-1, 480-73951-2, 480-74220-1 Metals

The data validation was performed under Category B guidelines. The analyses were validated using the following documents, as applicable to each method:

- USEPA Region 2 Standard Operating Procedure for the Evaluation of Metals for the Contract Laboratory Program, SOP HW-2, Revision 13, September 2006
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, EPA 540-R-10-011, January 2010

Please feel free to contact us if you have any questions.

Christina Rink

Sincerely,

Project Manager/Chemist

Attachment 1 1,212 pages-DL 1 WEEK TAT LDC #33693 (Posillico Consulting/RXR Glen Isle Partners / Glen Isle) Cat A/CatB 95/5 EDD SPLP (3) DATE Pb As, Pb DATE As As REC'D DUE (6010C) (6010C) (6010C) (6010C) LDC SDG# Matrix: Water/Soil 0 3 0 3 02/06/15 02/13/15 0 3 480-73951-1 - 0 3 02/06/15 02/13/15 В 480-73951-2 0 1 0 1 02/06/15 02/13/15 С 480-74220-1 0 0 0 0 0 T/CR lΓotal

Site: Glen Isle

Laboratory: TestAmerica, Inc. Report No.: 480-73951-1

Reviewer: Christina Rink/Laboratory Data Consultants for RXR Glen Isle Partners

Date: February 10, 2015

Samples Reviewed and Evaluation Summary

FIELD ID	LAB ID	FRACTIONS VALIDATED
LT-C-056 (2-4)	480-73951-1	Arsenic
LT-G-019 (2-14)	480-73951-2	Arsenic
LT-C-003 (0-2)	480-73951-3	Arsenic
LT-C-024 (2-4)	480-73951-4	Arsenic and Lead
LT-C-026 (6-8)	480-73951-5	Arsenic
LT-C-035 (4-6)	480-73951-6	Arsenic
CC-C-022 (0-2)	480-73951-7	Arsenic and Lead
CC-C-019 (0-2)	480-73951-8	Arsenic and Lead
CC-C-023 (6-8)	480-73951-9	Lead
CC-C-028 (0-2)	480-73951-10	Arsenic
CC-C-029 (8-10)	480-73951-11	Lead
CC-C-030 (8-10)	480-73951-12	Lead
CC-C-030 (8-10)MS	480-73951-12MS	Lead
CC-C-030 (8-10)MSD	480-73951-12MSD	Lead

Associated QC Samples(s):

Field/Trip Blanks: None Associated Field Duplicate pair: None Associated

The above-listed soil samples were collected on January 7, 2015 through January 9, 2015 and were analyzed for arsenic and lead by SW-846 methods 6010C. The data validation was performed in accordance with the USEPA Region 2 Standard Operating Procedure for the Evaluation of Metals for the Contract Laboratory Program, SOP HW-2, Revision 13 (September 2006) and the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, EPA 540-R-10-011 (January 2010), modified as necessary to accommodate the non-CLP methodologies used.

The inorganic data were evaluated based on the following parameters:

- Overall Evaluation of Data and Potential Usability Issues
- Data Completeness
- Holding Times and Sample Preservation
- Instrument Calibration
- Contract Required Quantitation Limit (CRQL) Standard Recoveries
- Blank Analysis Results
- Inductively Coupled Plasma (ICP) Interference Check Sample (ICS) Results
- Matrix Spike (MS) Results
- Laboratory Duplicate Results
- Field Duplicate Results
- Certified Reference Material (CRM) Results
- Serial Dilution Results
- Moisture Content
- Detection Limits Results
- Sample Quantitation Results

Overall Evaluation of Data and Potential Usability Issues

All results are usable as reported or usable with minor qualification due to sample matrix quality control outliers.

The validation findings were based on the following information.

Data Completeness

The data package was complete as defined under the requirements for the NYSDEC ASP category B laboratory deliverables.

Holding Times and Sample Preservation

All criteria were met.

Instrument Calibration

All criteria were met.

CRQL Standard Recoveries

All criteria were met.

Blank Results

No analytes were detected in the laboratory method and instrument blank samples.

No field blanks were identified in this SDG.

Laboratory Job 480-73951-1, Inorganics, Page 2 of 5

ICP ICS Results

All analytes were within control limits in the ICSA and ICSAB analyses.

MS/MSD Results

The laboratory performed MS and MSD analyses on sample CC-C-030 (8-10) for lead. The following table lists the analytes which exhibited recoveries outside of the control limits of 75 - 125% in the MS/MSD and the resulting validation actions.

MS Sample	Analyte	MS %R	MSD %R	RPD Limits	QC Limits	Associated Samples	Validation Actions
CC-C-030 (8-10)MS/MSD	Lead	-63	-69	•	75-125	LT-C-024 (2-4) CC-C-022 (0-2) CC-C-019 (0-2) CC-C-023 (6-8)	J detects
						CC-C-029 (8-10) CC-C-030 (8-10)	

Estimate (J) the detect lead results for the samples listed above due to low MS percent recovery results. The results may be biased low. The results are usable for project objectives as estimated values which may have a minor effect on the data usability.

Laboratory Duplicate Results

Laboratory duplicates were not associated with this sample set. Validation action was not required on this basis.

Field Duplicate Results

A field duplicate pair was not associated with this sample set. Validation action was not required on this basis.

CRM Results

All criteria were met.

Serial Dilution Results

A serial dilution analysis was performed on sample CC-C-030 (8-10) for lead. All criteria were met.

Moisture Content

All criteria were met.

Glen Isle, NYSDEC, Project Number: RWI1401

Detection Limits Results

No results were reported below the reporting limit (RL).

Due to interfering analytes, select samples were analyzed at dilutions. The following table lists the sample dilutions which were performed and the results reported. RLs were elevated accordingly.

	Metal Analysis
Sample	Reported
LT-C-026 (6-8)	5-fold dilution due to high interfering analytes

Sample Quantitation Results

Calculations were spot-checked; no discrepancies were noted.

DATA VALIDATION QUALIFIERS

- U The analyte was analyzed for, but due to blank contamination was flagged as nondetect (U). The result is usable as a nondetect.
- J Data are flagged (J) when a QC analysis fails outside the primary acceptance limits. The qualified "J" data are not excluded from further review or consideration. However, only one flag (J) is applied to a sample result, even though several associated QC analyses may fail. The 'J' data may be biased high or low or the direction of the bias may be indeterminable.
- UJ The analyte was not detected above the reported sample quantitation limit. Data are flagged (UJ) when a QC analysis fails outside the primary acceptance limits. The qualified "UJ" data are not excluded from further review or consideration. However, only one flag is applied to a sample result, even though several associated QC analyses may fail. The 'UJ' data may be biased low.
- R Data rejected (R) on the basis of an unacceptable QC analysis should be excluded from further review or consideration. Data are rejected when associated QC analysis results exceed the expanded control limits of the QC criteria. The rejected data are known to contain significant errors based on documented information. The data user must not use the rejected data to make environmental decisions. The presence or absence of the analyte cannot be verified.

LDC #: 33693A4b SDG #: 480-73951-1

VALIDATION COMPLETENESS WORKSHEET

Cat B

Reviewer:

2nd Reviewer

Laboratory: Test America, Inc.

METHOD: As & Pb (EPA SW 846 Method 6010C)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
l.	Sample receipt/Technical holding times	AA	
II.	Instrument Calibration	A	
111.	ICP Interference Check Sample (ICS) Analysis	A	
IV.	Laboratory Blanks	A	
V.	Field Blanks	\ \times \	
VI.	Matrix Spike/Matrix Spike Duplicates	SW	
VII.	Duplicate sample analysis	N	
VIII.	ICP Serial Dilution	A	
IX.	Laboratory control samples	1	9RM
X.	Field Duplicates	N	
XI.	Sample Result Verification	A	all RL
XII	Overall Assessment of Data	B	

Note:

A = Acceptable

N = Not provided/applicable SW = See worksheet

ND = No compounds detected

R = Rinsate

FB = Field blank

D = Duplicate

TB = Trip blank EB = Equipment blank SB=Source blank OTHER:

Client ID Matrix Date Lab ID LT-C-056 (2-4) 480-73951-1 Soil 01/07/15 LT-G-019 (2-14) 480-73951-2 Soil 01/07/15 3 LT-C-003 (0-2) Soil 01/07/15 480-73951-3 4 LT-C-024 (2-4) 480-73951-4 Soil 01/07/15 5 LT-C-026 (6-8) 480-73951-5 Soil 01/07/15 LT-C-035 (4-6) 01/07/15 6 480-73951-6 Soil CC-C-022 (0-2) 480-73951-7 Soil 01/09/15 8 CC-C-019 (0-2) 480-73951-8 Soil 01/09/15 9 CC-C-023 (6-8) 480-73951-9 Soil 01/09/15 10 CC-C-028 (0-2) 480-73951-10 Soil 01/09/15 11 CC-C-029 (8-10) 480-73951-11 Soil 01/09/15 12 CC-C-030 (8-10) 480-73951-12 01/09/15 Soil 13 CC-C-030 (8-10)MS 480-73951-12MS Soil 01/09/15 14 CC-C-030 (8-10)MSD 480-73951-12MSD Soil 01/09/15 15 16

LDC#: 33693A-15

VALIDATION FINDINGS WORKSHEET Sample Specific Element Reference

Page: of Reviewer: CR 2nd reviewer:

All circled elements are applicable to each sample.

	,
Sample ID Matrix	Target Analyte List (TAL)
1-3,5,6,10	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
4,7,8	Al, Sb, As) Ba, Be, Cd, Ca, Cr, Co, Cu, Fe Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
9,1172	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe(Pb), Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
, ,	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
QC-1349	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Sn, Ti,
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Sn, Ti,
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
	Analysis Method
ICP	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
ICP-MS	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
GFAA	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti

Comments: Mercury by CVAA if performed

LDC #: 33693A4b

 (Υ) N N/A

N/A

VALIDATION FINDINGS WORKSHEET Matrix Spike/Matrix Spike Duplicates

Were matrix spike percent recoveries (%R) within the control limits of 75-125? If the sample concentration exceeded the spike concentration by a factor

Page: <u></u> of <u></u>
Reviewer:
2nd Reviewer:

METHOD: Trace metals (EPA SW 846 Method 6010B/6020A/7000)

of 4 or more, no action was taken.

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Was a matrix spike analyzed for each matrix in this SDG?

MS/MSD ID	Matrix	Analyte	MS %Recovery	MSD %Recovery	RPD (Limits)	Associated Samples	Qualifications
13/14		P5	-63	-69		4,7,89,1,12	J/RIA (Det)
							

VALIDATION FINDINGS WORKSHEET Initial and Continuing Calibration Calculation Verification

Page:_	(_of
Reviewer:_	or
2nd Reviewer:	
_	

METHOD: Trace metals (EPA SW 846 Method 6010/6020/7000)

An initial and continuing calibration verification percent recovery (%R) was recalculated for each type of analysis using the following formula:

%R = <u>Found</u> x 100 True

Where, Found = concentration (in ug/L) of each analyte <u>measured</u> in the analysis of the ICV or CCV solution True = concentration (in ug/L) of each analyte in the ICV or CCV source

Standard ID	Type of Analysis	Element	Found (ug/L)	True (ug/L)	Recalculated %R	Reported %R	Acceptable (Y/N)
ICV	ICP (Initial calibration)	As	035907	0.375	96	96	4
	ICP/MS (Initial calibration)						1
	CVAA (Initial calibration)						
æv	ICP (Continuing calibration)	P5	0.47963	0,5	96	96	9
	ICP/MS (Continuing calibration)						
	CVAA (Continuing calibration)						

Comments:			

LDC#: 33693#

VALIDATION FINDINGS WORKSHEET Level IV Recalculation Worksheet

	Page:_	of/_
	Reviewer:	Q
2nd	Reviewer:	7

METHOD: Trace Metals (EPA SW 846 Method 6010/6020/7000)

Percent recoveries (%R) for an ICP interference check sample, a laboratory control sample and a matrix spike sample were recalculated using the following formula:

 $%R = Found \times 100$ True

Where, Found = Concentration of each analyte measured in the analysis of the sample. For the matrix spike calculation, Found = SSR (spiked sample result) - SR (sample result).

True = Concentration of each analyte in the source.

A sample and duplicate relative percent difference (RPD) was recalculated using the following formula:

 $RPD = |S-D| \times 100$

Where, S = Original sample concentration

(S+D)/2

D = Duplicate sample concentration

An ICP serial dilution percent difference (%D) was recalculated using the following formula:

%D = <u>||-SDR|</u> x 100

Where, I = Initial Sample Result (mg/L)

SDR = Serial Dilution Result (mg/L) (Instrument Reading x 5)

Sample ID	Type of Analysis	Element	Found / S / I (units)	True / D / SDR (units)	Recalculated %R / RPD / %D	Reported %R / RPD / %D	Acceptable (Y/N)
ICSAB	ICP interference check	As	0.10296	0.1	103	103	
LCS	Laboratory control sample	AS	151	137.2	90.7	90,7	
13	Matrix spike	<i>bp</i>	(SSR-SR) - 27, 82 231, 2619	- 44.1	-63	-63	
MCI	Duplicate		140,345/2	145.79	١		
12	ICP serial dilution		174.7791	175,5354	1.8	1.8	

Comments:	 							

LDC#. 3343A45

VALIDATION FINDINGS WORKSHEET Sample Calculation Verification

Page:	of\
Reviewer:	0
2nd reviewer:	1

METHOD: Trace Metals (EPA SW 846 Method 6010/6020/7000)

Y N Y N	N/A Are all detected analyte results for _ on: tration = \frac{(RD)(FV)(Dil)}{(ln. Vol.)} = Raw data conce = Final volume (m	been reported a vithin the calibrat tion limits below	nd calcula ed range of the CRDL	ated correctly? of the instrument ?	licable questions and the line were recalculated and within the line were recalculated and line were r	ear range of the IC	CP? using the following
#	Sample ID		Analyte	AS J AS J Pb AS Pb Pb	Reported Concentration (MF8) 813.1 3.5 2.7 7.7 4.3 6.57 371 473 215 13.0 141 175	Calculated Concentration (Males) 3,5 3,7 4,3 657 473 A15 171 175	Acceptable (Y/N)
Note:_							

SOP:	HW-2 Revis	ion 13	Appendix A.1	Sept. 2006	
				<u>YES NO· N/A</u>	
A.I.I	Contract Compl Present?	iance Screenir	ng Report		
	ACTION:	If no, contac	ct RSCC/PO.		
A.I.2	Record of Comm	nunication (fro	om RSCC)		
	Present?			[]	_
	ACTION:	If no, reques	st from the RSCC.		
A.1.3	Sampling Trip R	eport		1	
	Present an	d complete?		[]	
	ACTION:	If no, contac	t RSCC/PO.		
A.I.4	Chain of Custod	y/Sample Traff	fic Report	. ,	
	Present?			<u> </u>	
	Legible?				
	Signature c present?	of sample custo	dian	<u></u>	
	<u>ACTION</u> : If	no, contact RS	CC/WAM/PO.		
A.I.5	Cover Page	·		,	
	Present?				
	and the verl	r Page properly patim signed by the manager's	y the lab		
	on the Cove	ple identification er Page agree w n numbers on:			
	(a) Traffic R	eport Sheet?			

Standard Operating Procedure

SOP: H	IW-2 Revision 13	Appendix A.1	Sept. 2006	
/H) Form I's?		YES NO N/A	
	Is the number of samples of Page the same as the num samples on the Traffic Repand the Regional Record of (ROC) for the data Case	nber of port sheet f Communication		
	ACTION: If no for any of the above, proceedings and for re-submittal of the correspond to the laboratory.	contact RSCC/PO		
A.1.6 <u>SI</u>	DG Narrative, DC-1 & DC-2 For	<u>m</u>		
	Is the SDG Narrative presen	nt?		
	Is Sample Log-In Sheet(For present and complete?	rm DC-1)		
	Is Complete SDG Inventory present and complete?	Sheet(Form DC-2)		
	ACTION: If no, write in the Contract-P Non-Compliance Section Narrative.			
4.1.7 <u>Fo</u>	rm I to XV			
۱.7.1	Are all the Form I through For labeled with:	orm XV		
	Laboratory Name?		<u></u>	
	Laboratory Code?		<u></u>	
	RAS/Non-RAS Case No.?		(<u></u>	
	SDG No.?		1	

SOP:	HW-2	Revision 13	Appendix A.1	Sept. 2006	
-				YES NO N/A	
		Contract No.?			
A.1.7.		ACTION: If no for any of the above Contract Problem/Non-Cof the "Data Review Nar PO for corrected Form(s After comparing values of against the raw data, do transcription errors excereported values on the F	Compliance Section rative" and contact from the laboratory. Forms I-IX any computation/ ed 10% of the		
		analytes analyzed by IC		_ 1/_	
	(b) all	analytes analyzed by iCl	P-MS?	_ [_] _	
	(c) Me	ercury?	•	_ U	
	(d) Cy	anide?		_ U /	
	and co	N: prepare Telephone Recontact CLP PO/TOPO for om the laboratory.	_		
A.1.8	hard/e	Data hall not be validated w lectronic copies of the ata for samples and QC	associated		
A.1.8.1	[Digestion/Distillation Log			
(on Log for ICP-AES II)present?			
(on Log for ICP-MS II) present?			
	~	on Log for mercury XII) present?			
		ion Log for cyanide XII) present?			
	Are pH	values for metals and			

Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP:	HW-2	Revision 13	Appendix A.1	Sept. 2006	
				<u>YES NO N/A</u>	
		e reported for each			
	aqueou	us sample?			
		rcent solids calculations			
	present	t for soils/sediments?			
		paration dates present or		. /	
	sample	preparation logs/bench s	heets?		
	NOTE:		•		
		Distillation log must include weigh ons used to obtain the reported re			
A.1.8.2	2 ls	the analytical instrument			
	real-time	e printouts present for	·• ·		
	ICP-AES	S?		<u> </u>	
	ICP-MS	?			
	Mercury	?			
	Cyanide	?			
	Are all la	aboratory bench sheets			
		rument raw data printouts			
a		ry to support all sample and QC operations:			
		,			
L	.egible?				
F	Properly la	abeled?		4	
		d samples, QC samples			
	and field	QC samples present on:			
	igestion/	Distillation log?		<u> </u>	
lr	nstrument	t Printouts?		<u> </u>	

ACTION:

If no for any of the above questions in Section A.1.8.1 and Section A.1.8.2, write Telephone Record Log and contact TOPO/PO for re-submittal from the laboratory.

Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP: HW	-2 Revisi	on 13	Appendix	A.1	Se	ept. 2	006
					YES	<u>NO</u>	N/A
(Exam	ine sample Traffic	Reports and diges	queous and soil samp tion/distillation logs to le collection date to the san				
A.1.9.1	Cyanide di	stillation(14 da	ays)exceeded?		_ [_]	_/	
	Mercury ar	nalysis(28 day	s) exceeded?		_ [_] _	
	Other Meta	als analysis(18	30 days)exceeded?		[]	_	
lf y and	TION: es, reject (R) a d flag as estim mple(s) was p	ated (J)results	s ≥ MDL even				
a lis whic be p the r (Sub from Attach	TE: ddition to qualifying the fall samples and the exceeded the ho repared. Report for number of days tha biract the sample or the sample prepare this list to the data ative.	d analytes Iding times must reach sample t were exceeded. ollection date ration date).					
A.1.9.2	is pH of aqu	ueous sample	s for:				
Met	tals Analysis	≤ 2?					_
Cya	ınide Analysis	≥ 12?			□ _	/	
If no	TION: of for any of the address of t		"J".				
A.1.9.3 Is the	e cooler tempe	erature ≤ 10 (C°?			_	
If co	FION: oler temperatur detects as "UJ"						
A.1.10 <u>Fina</u>	al Data Correc	ctness - Form	<u>1 </u>				

A.1.10.1 Are Form I's for all samples

Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP:	HW-2	Revision 13	Appendix A.1	S	ept. 2	006
			•	YES	NO	N/A
	prese	ent and complete?			<u>. </u>	
	Log a	ON: prepare Telephone Rec nd contact CLP PO/TOF ittal from the laboratory.			·	
A.1.10	.2	•	ulation and transcription errors in the rcle on each Form I all results that a		ect.	
		Is the calculation error le	ess than 10% of the correct result?			
		Are results on Form I's r MG/KG for soils)?	reported in correct units (ug/L for aq	ueous ar	nd	
		Are results on Form I'S	reported by correct significant figu	res? [<u> </u>	_1 _	
		Are soil sample results c corrected for percent sol		[]	<u></u>	
		Are all "less than MDL" very the CRQLs and coded	•	[]		
	b	Are values less than the out greater than or equal DLs flagged with "J"?	•	[]		·
		Are appropriate contracto entrol and Method qualifi	• •		·	
	li p	CCTION: f no for any of the above repare Telephone Reco	rd Log, and contact			
1.10.3	a s o	o EPA sample identificand the corresponding lab ample identification numbers of the Cover Page, Form of the raw data?	poratory Bers match	[]		

Was a brief physical description

Evaluation of Metals Data for the Contract Laboratory Program Data Assessment and Contract Compliance Review

SOP: HW-	2 Revision 13	Appendix A.1	Sept. 2006
			YES NO N/A
	of the samples before and digestion given on the For		[_]
·	Was any sample result ou mercury/cyanide calibratio or the ICP-AES/ICP-MS lindiguted and noted on the F	n range near range	· · · · · · · · · · · · · · · · · · ·
	ACTION: If no for any of the above, the Contract-Problem/Non Section of the Data Review	-Compliance	
A.1.11 <u>Initia</u>	al Calibration		
A.1.11.1	is a record of at least 2 po (A blank and a standard)ca present for ICP-AES analy	alibration	
	Is a record of at least 2 poi (a blank and a standard)calibrate present for ICP-MS analys	ation	
	Is a record of at least 5 poi (a blank & 4 standards)present		
	Is a record of at least 4 poi (a blank & 4 standards)present		[_]
	ACTION: If incomplete or no initial cawas performed, reject (R) at the associated data (detection).	and red-line	
	Is one initial calibration star at the CRQL level for cyani mercury?		
	ACTION: If no, write in the Contract F Non-Compliance Section of Review Narrative.		
A.1.11.2	Is the curve correlation		

coefficient ≥ 0.995 for:

SOP: HW-	2 Revision 13 App	endix A.1	Sept. 2006
			<u>YES NO N/A</u>
	Mercury Analysis?		
	Cyanide Analysis?		
	ICP-AES (more than 2 point Ca	lib.)?	[<u></u>
	ICP-MS (more than 2 point ca	lib.)?	r 1
	ACTION: If no, qualify the associated results > MDL as estimated "a non-detects as "UJ". NOTE: The correlation coefficient shall be calculated by the data validator using standard concentrations and the corresponding instrument response (e.g absorbance, peak area, peak height, et	J" and	
A.1.12	Initial and Continuing Calibrat	ion Verification-	Form IIA
A.1.12.1	Present and complete for ever metal and cyanide?	Ϋ́Υ	<u></u>
	Present and complete for ICP- and ICP-MS when both these me were used for the same analyt	thods	[]
	ACTION: If no for any of the above, p Telephone Record Log and cont for re-submittal from the lab	act PO/TOPO	
A.1.12.2	Was a Continuing Calibration Verification performed every 10 samples or every 2 hours whichever is more frequent?		[
	ACTION: If no for any of the above, win the Contract-Problem/Non-Contract Review National Rev	ompliance	
A.1.12.3	Was an ICV or a mid-range star distilled and analyzed with ea of cyanide samples?		

Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP: HW-2	Revision 13	Appendix A.1	Sej	pt. 200	6
			YES	NO V	<u>/A</u>
•	Section of the Da	the above, write Problem/Non-Compliance ta Review Narrative and MDL as estimated (J).			
A.1.12.2	Circle on each Form IIA that are outside the cor	A all percent recoveries ntract windows.			
	Are ICV/CCVs within co	ontrol limits for:			
	Metals - 90-110%	6R?			
	Hg - 80-120%R	?	[]		_
	Cyanide - 85-115%	6R?	[]		_
		s between a previous technically uent technically acceptable CCV		CV	
	if the ICV/CCV %R is be Qualify only positive resident between 111-125%(121 red-line only detects if the recovery is CN). Reject (R) and red) all detects and non-detects, etween 75-89%(65-79% for Hg; 7 sults(\geq MDL) as "J" if the ICV/CCN1-135% for Hg;116-130% for CN) as greater than 125% (135% for HI-line all associated results (hits as less than 75%(65% for Hg;70%)	V %R is). Reject (R) ar Ig; 130% for and non-		
	NOTE: For ICV that does not fall within qualify all samples reported from				
A.1.12.3	Was the distilled ICV or standard for cyanide wit limits (85-115%)?	•	[]		_
	ACTION: If no, Qualify all cyanide	results ≥ MDL as "J".			

A.1.13 CRQL Standard Analysis - Form IIB

A.1.13.1 For each ICP-AES run, was a CRI

Standard Operating Procedure

USEPA Region 2
Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP:	HW-2	Revisi	on 13		Appen	dix A.1		Se	pt. 2	006	
	standa	or MDL ward analyze (Note:CRI Ca, Fe, Mg	d? is not r	equired for	: Al, Ba	,	[_	<u> </u>	<u>NO</u>	<u>N/A</u>	
	(8	CRQL or MD	L when MC or each m	n, was a CR DL > CRQL) st ass/isotope	andard		[_]		-/	
		For each m standard ar	-	n, was a CR	QL]		_	_
		For each cy standard an		n, was a CR0	QL		[_]		_	
							•				
	If th N N in	lon-Compli larrative, in	cy in the ance Sec form CLP ed ranges	oove, write Contract Pro ction of the D PPO and fla s (detects <2	ata Rev g results						•
) 1	ICP-AES ICP-MS Mercury Cyanide	Analysis - Analysis - Analysis -	*True Va *True Va *True Va *True Va	alue ± CRQL alue ± CRQL alue ± CRQL alue ± CRQL alue ± CRQL	lard						
A.1.13.2	IC on	V/ICB, before every 2	ore the fir 0 analytic	d analyzed a nal CCV/CC cal samples each analysis	B and in		[)	<u> </u>	-	
	If r No	CTION: no, write in on-Complia ata Review	nce Secti		/د						
.1.13.3		rcle on eac coveries tha		B all percentside the	t						

acceptance windows.

Standard Operating Procedure

SOP:	HW-2	Revision 13	Appendix A.1	Se	ept. 2	006
		Is the CRQL standard with limits for:	thin control	YES	<u>NO</u>	N/A
		Metals(ICP-AES/ICP-MS)- 70 - 130%?	$\begin{bmatrix} \checkmark \end{bmatrix}$		
		Mercury- 70 - 130%?		[]		
		Cyanide - 70 - 130%?		[]		_
		ACTION: If no, flag detects <2xCR0 non-detects as "UJ" if the recovery is between 50-60 detects <2xCRQL if the re 131% and ≤180%. If the re 150%, reject(R) and red-lidetects < 2xCRQL, and flag 2xCRQL and ICV/CCV. Redetects <2xCRQL and flag but < ICV/CCV if the recovery in the recovery series of the recovery series.	CRQL standard 9%. Flag(J) only ecovery is between recovery is less than ine non-detects and ag (J) detects between eject and red-line only g (J)detects ≥ 2xCRQL			
		NOTE: 1.Qualify all field sample a previous technically at the CRQL standard and a analysis of the CRQL state. 2.Flag (J) or reject (R) or sample results on Form I raw data are within the and the CRQL standard is acceptance windows. 3.The samples and the CRQL analyzed in the same analyzed.	acceptable analysis of subsequent acceptable andard only the final is when Sample affected ranges outside the			
.1.14	<u>Initial</u>	and Continuing Calibrat	ion Blanks - Form III			
1.14.	1	Present and complete for a the instruments used for the metals and cyanide analys	ne	[]		
		Was an initial Calibration E analyzed after ICV?	Blank	[]		
	3	Was a continuing Calibrati analyzed after every CCV 10 samples or every 2 hou is more frequent?	and every		************	
		Were the ICB & CCB value reported on Form III and fla				

Evaluation of Metals Data for the Contract Laboratory Program Data Assessment and Contract Compliance Review

SOP: HW-2	Revision 13	Appendix A.1	S	ept. 2006
	using MDLs from direct ar Method "NP1")? (Check Form III against ACTION: If no, inform CLP PO/TOF in the Contract-Problems/ Section of the "Data Review.")	nalysis(Preparation the raw data) O and make a note Non-Compliance	YES	NO N/A
A.1.14.2	Circle with red pencil on e all Calib. Blank values tha			
	≥ MI	OL but ≤ CRQL		·
	> CF	RQL		
A.1.14.2.1	When MDL < CRQL, is an value ≥ MDL but ≤ CRQL?	•		
	ACTION: If yes, change sample resubut ≤ CRQL to the CRQL v Do not qualify non-detects.	vith a "U".		
	en MDL < CRQL, is any Ca ue > CRQL?	alib. Blank		[<u></u>
; } •	ACTION: If yes, reject (R) and red linassociated sample results but <icb blank="" ccb="" resuldetects=""> ICB/CCB blank volume. Chartesults > MDL but < the CR with a "U".</icb>	> CRQL t. Flag as "J" alue but age the sample		
	ny Calibration Blank value ow the negative CRQL?			<u></u>
	ACTION: f yes, flag (J) as estimated associated sample results > <10xCRQL			

For ICB that does not meet the technical QC Criteria, apply the action to all samples

NOTE:

SOP: HW	-2 Revision 13	Appendix A.1	Se	ept. 200	6
2. 1	eported from the analytical run. For CCBs that do not meet the technical QC apply the action to all samples analyzed betorevious technically acceptable analysis of C subsequent technically acceptable analysis CCB in the analytical run.,	ween a CCB and	<u>YES</u>	NO N	I/A
A.1.15	Preparation Blank - F NOTE: The Preparation Blank for is the same as the calibration	or mercury			
A.1.15.	Was one Preparation B with and analyzed for				·
	Each Sample Delivery (Group (SDG)?	$[\underline{\hspace{1cm}}]$		
	Each batch of the SDG digested/distilled?	samples		<u> </u>	
	Each matrix type?	·	[]		
	All instruments used fand cyanide analyses?	for metals			
	ACTION: If no for any of the a as estimated (J) all to positive data <10xMDL Preparation Blank was NOTE: If only one blank was analyzed than 20 samples, then the first analyzed are not estimated (J) additional samples must be que	the associated for which the not analyzed. d for more st 20 samples , but all		~	
1.15.2	Circle with red pencil				
	all Prep. Blank values				
	≥ MDL but ≤ C	RQL, and			
	> CRQL			/	
.1.15.2.	1 When MDL $<$ CRQL, is an value \ge MDL but \le CRQL			[]	
	ACTION: If yes, change sample :	result <u>></u> MDL			

Evaluation of Metals Data for the Contract Laboratory Program Data Assessment and Contract Compliance Review

SOP: HW-	2 Revision 13	Appendix A.1	S	ept. 2	0.06	
			YES	NO	N/A	
	but \leq CRQL to CRQL with a	a "U".				
A.1.15.2.	2 When the MDL \leq CRQL, is a Blank value greater than				<u> </u>	
	If yes, is the Prep. Blangreater than the value of Field Blank collected and the SDG samples?	the associated		[_]	_
	If yes, is the lowest con that analyte in the assoc less than 10 times the Pr Blank value?	iated samples		[_]	_
	ACTION: If yes, reject (R) and re sample results greater th than the Prep.Blank value detects > Prep. Blank value if the sample result > MD it with CRQL-U.	an the CRQL but less . Flag as "J" ue but <10xPrep.Blar	ak.			
	If the Prep. Blank value analyte value in the Field qualify the sample results Prep. Blank criteria.	d Blank, do not	ne			
	NOTE: Convert soil sample result to mg/K wet weight basis to compare with t Prep. Blank result on Form III.	g on he soil				
A.1.15.2.3	Is the Prep. Blank concent below the negative CRQL?	cration .	[_			
	ACTION: If yes, flag (J) all associant results less than 1 Qualify non-detects as est	0xCRQL.				
	When the MDL is greater the CRQL, is the preparation be concentration on Form III than two times the MDL?	lank		[]	_	-

ACTION:

Evaluation of Metals Data for the Contract Laboratory Program Data Assessment and Contract Compliance Review

SOP: HW-	2 Revision 13 Appendix	A.1	Sept. 2	006
	If yes, reject (R) and red-line al positive sample results with sample		<u>NO</u>	<u>N/A</u>
	raw data less than 10 times the Preparation Blank value.			
A.1.16	<pre>ICP-AES/ICP-MS Interference Check : NOTE:Not required for CN, Hg, Al, Ca, Fe</pre>		Form IV	
A.1.16.1	Present and complete?	[
	Was ICS analyzed at the beginning and end of each analytical run, and once for every 20 analytical sample		_1 <i></i>	
	Was ICS analyzed at the beginning of the ICP-MS analytical run?	o <u>f</u>	_1	
	ACTION: If no, flag as estimated (J) all sample results.			
A.1.16.2	ICP-AES Method			
A.1.16.2.1	ICSA Solution: For ICP-AES, are the ICSA "Found" a values within the control limits ± of the true/established mean value?		<u> </u>	
	If no for any of the above, is the sample concentration of Al, Ca, Fe, or Mg in the same units (ug/L or MG greater than or equal to its respec concentration in the ICSA Solution Form IV?	tive	.]	
	ACTION: If yes, apply the following action all samples analyzed between a preventechnically acceptable analysis of ICS and a subsequent technically accanalysis of the ICS in the analytical	ious the ceptable		·

Flag (J) as estimated only sample results $\geq MDL$

Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

Appendix A.1 SOP: HW-2 Revision 13 Sept. 2006 YES NO N/Afor which the ICSA "Found" value is greater than (True value+CRQL). Do not qualify non-detects. If the ICSA "Found" value is less than (True value-CRQL), flag non-detects as "UJ" and detects as "J". A.1.16.2.3 ICSAB Solution For ICP-AES, are all analyte results in ICSAB within the control limits of 80-120 of the true/established mean value? If no for any of the above, is the sample concentration of Al, Ca, Fe, or Mg in the same units (ug/L or MG/KG) greater than or equal to its respective concentration in the ICSAB Solution on Form IV? ACTION: If yes, apply the following action to all samples analyzed between a previous technically acceptable analysis of the ICS and a subsequent technically acceptable analysis of the ICS in the analytical run: Flag (J) as estimated those associated sample results ≥ MDL for which the ICSAB analyte recovery is greater than 120% but ≤ 150%. If the ICSAB recovery falls within 50-79%, qualify sample results ≥ MDL as "J" and non-detects as "UJ". Reject (R) and red-line all sample results (detects & non-detects) for which the ICSAB analyte recovery is less than 50%. If the recovery is above 150%, reject (R) and red-line only positive results. ICP-MS Method A.1.16.3 A.1.16.3.1 ICSA Solution: For ICP-MS, are the ICSA "Found" analyte values within the control limits of ±CRQL of the true/established mean value? ACTION: If no, apply the following action to all samples reported from the analytical run: Flag (J) as estimated only sample results > MDL if the ICSA "Found" value is greater than (True value+CRQL). Do not qualify non-detects. If the ICSA "Found" value is less than

(True value-CRQL), flag the associated sample

detects as "J" and non-detects as "UJ".

Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP: HW-2	Revision 13	Appendix A.1	S	ept. 2	2006
			YES	NO	N/A
A.1.16.3.3	ICSAB Solution For ICP-MS, are all in ICSAB within the 80-120% of the true, value, whichever is	control limits of /established mean	[]		_/
		llowing action to all om the analytical run:			
	analyte recovery is ≤ 150%. If the ICSAB 50-79% flag (J) as e sample results ≥ MDL those all sample det which the ICSAB anal	for which the ICSAB greater than 120% but 3 recovery falls within estimated the associated a. Reject (R) and red-line ects and non-detects for yte recovery is less than y is above 150%, reject (R)			
		ry: Pre-Digestion/Pre-Disti Ca,Mg,K,and Na(both matrices);			
4.1.17.1	Was Matrix Spike ana	lysis performed:			
1	For each matrix type	?	[]		
I	For each SDG?		[]		
(On one of the SDG sai	mples?	$[_]$		
	For each concentration (i.e.,low, med., high		[_]		
	For each analytical M TICP-AES,ICP-MS, Hg,		[_]		
	as a spiked sample panalyzed with the SDC		[<u></u>] .		
I e f	CTION: f no for any of the stimated(J)all the portion or which a spiked sanalyzed.	positive data			

NOTE:

• •

If more than one spiked sample were analyzed for one SDG, then qualify the associated data based on the worst spiked sample analysis.

SOP: HW	-2 Revision 13 App	endix A.1	S	ept. 2006
			YES	NO N/A
A.1.17.2	Was a field blank or PE sample for the spiked sample analysis?			<u> </u>
·	ACTION: If yes, flag (J) as estimated pdata of the associated SDG sampwhich field blank or PE sample for the spiked sample analysis.	les for was used		
A.1.17.3	Circle on each Form VA all spik recoveries that are outside the control limits (75-125%) that h sample concentrations less than times the added spike concentra	ave four		
	Are all recoveries within the control limits when sample concentrations are less than or equal to four times the spike concentrations? NOTE: Disregard the out of control spike recoveries for analytes whose concentrations are greater than or equal to four times the spike added.		. · [<u></u>]	<u> </u>
	Are results outside the control (75-125%) flagged with Lab Qualif on Form I's and Form VA? ACTION: If no for any of the above, writ	fier "N"		
	the Contract - Problems/Non-Comp Section of the Data Review Narra	oliance		
.1.17.4	Aqueous			
	Are any spike recoveries:			
	(a) less than 30%?			[_] <u></u>
	(b) between 30-74%?			[_] _
	(c) between 126-150%?			
	(d) greater than 150%?			<u></u>
	ACTION: If the matrix spike recovery is 30%, reject (R) and red-line all a aqueous data (detects & non-detect between 30-74%, qualify all associations and nor approximately data > MDL as "J" and nor	associated cts). If ciated		

Standard Operating Procedure

SOP: HW-	2 Revision 13	Appendix A.1	Sept.	2006
	all data ≥ MDL as	en 126-150%, flag (J) "J". If greater than 150%, d-line all associated data > 1	YES NO	<u>N/A</u>
	(NOTE:Replace "N" w	ith "J", "R" as appropriate.)		
A.1.17.5	Soil/Sediment			
	Are any spike reco	overies:		
	(a) less than 10%	?		_]
	(b) between 10-749	} ?	[<u> </u>
	(c) between 126-20	00%?	(.1/
	(d) greater than 2	200%?	(1
	ACTION: If yes for any of as follows:	the above, proceed		
	than 10%, reject (R associated data (c) if between 10-74%, data > MDL as "J" if between 126-200 data > MDL as "J" (R) and red-line a	te recovery is less R mondard and red-line all detects & non-detects); qualify all associated and non-detects as "UJ"; %, flag (J) all associated If greater than 200%, reject ll associated data > MDL. th "J" or "R" as appropriate.)	etects only ba	old ional judgement
A.1.18	Lab Duplicates) -	Form VI		
A.1.18.1	Was the lab duplic	ate analysis performed:		
	For each SDG?			
	On one of the SDG	samples?	[]	
	For each matrix type	pe?		
	For each concentration (low or med.)?	tion range	(<u></u>	
	For each analytical (ICP-AES/ICP-MS,Hg,		[<u>_</u>]	
	Was a lab duplicate analyzed with the S			

Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP: HW-2	Revision 13	Appendix A.1	Sept	2006 .
			YES 1	<u>N/A</u>
	ACTION: If no for any of the a estimated all the SDG (detects & non-detects duplicate analysis was	sample results s) for which the lab		
	NOTE: If more than one lab duplic were analyzed for an SDG, the associated samples base worst lab duplicate analysi	then qualify ed on the		
A.1.18.2	Was a Field Blank or P for the Lab Duplicate		[
	ACTION: If yes, flag as estima SDG sample results (hi for which Field Blank used for duplicate ana	ts & non-detects) or PE sample was		
A.1.18.3	Circle on each Form VI that are:	all values		
	RPD > 20%, or			
	Absolute Difference > 0	CRQL		
	Are all values within of limits (RPD \leq 20% or ald difference \leq \pm CRQL)?			·
	If no, are all results control limits flagged (Lab Qualifier) on Form all Form I's?	with an "*"	[]	
:	ACTION: If no, write in the Con Non-Compliance Section Review Narrative.			
ī r	NOTE: The laboratory is not requir report on Form VI the RPD wh noth values are non-detects.			
.1.18.4 2	lqueous			

A.1.18.4.1 When sample and duplicate values are both

 \geq 5xCRQL (substitute MDL for CRQL when MDL > CRQL),

SOP: HW-2	Revision 13	Appendix A.1		Sept. 20	06
			YES	NO	N/A
	is any RPD > 20% but < 100	%?		[]	
	is any RPD ≥ 100%?			[]	
	ACTION: If the RPD is > 20% but < flag (J) as estimated the sample data > CRQL. If the > 100%, reject (R) and red associated sample data > CMOTE:Replace "*" with "J" or "F	associated RPD is -line the RQL.			
A.1.18.4.2	When the sample and/or dup. <5xCRQL (substitute MDL for is the absolute difference and duplicate values:	CRQL when MDL >CRQL),			
	> ± CRQL?			[]	
	> ± 2xCRQL?			[]	
	ACTION: If the absolute difference flag as estimated all the a sample results ≥ MDL but < and non-detects as "UJ". If difference is > 2xCRQL, rejred-line all the associated and detects ≥ MDL but < 5xCNOTE: 1. Replace "*" with "J", "UJ" or 2. If one value is >CRQL and the calculate the absolute differe and the MDL, and use this diff	associated 5xCRQL as "J" the absolute ject (R) and non-detects CRQL. "R" as appropriate.) other value is non-detect, ence between the value > CR			
.1.18.5	Soil/Sediment				
	When sample and duplicate vare both \geq 5xCRQL (substitute CRQL when MDL > CRQL),				
	is any RPD ≥ 35% but < 120%	?			~
	is any RPD \geq 120%?			[_/]	
	ACTION: If the RPD is \geq 35% and $<$ 1. (J) as estimated the associated				

Evaluation of Metals Data for the Contract Laboratory Program

Data Assessment and Contract Compliance Review

Appendix A.1 Sept. 2006 Revision 13 SOP: HW-2 YES NO N/Adata \geq CRQL. If the RPD is \geq 120%, reject (R) and red-line the associated sample data ≥ CRQL. A.1.18.5.2 When the sample and/or duplicate value .<5xCRQL(substitute MDL for CRQL when MDL > CRQL), is the absolute difference between sample and duplicate: $> \pm 2 \times CRQL$? $> \pm 4 \times CRQL$

ACTION:

If the absolute difference is > 2 x CRQL, flag all the associated sample results \geq MDL but < 5xCRQL as "J" and non-detects as "UJ". If the absolute difference is > 4xCRQL, reject (R) and red-line all the associated non-detects and detects \geq MDL but <5xCRQL.

NOTE:

- Replace "*" with "J", "UJ" or "R" as appropriate.)
 If one-value is >CRQL and the other value is non-detect,
- calculate the absolute difference between the value > CRQL and the MDL, and use this difference to qualify sample results.

A.1.19 Field Duplicates

Aqueous Field Duplicates

A.1.19.1 Was an aqueous Field Duplicate pair collected and analyzed?
(Check Sampling Trip Report)

ACTION:

If yes, prepare a Form (Appendix A.4) for each aqueous Field Duplicate pair. Report the sample and Field Duplicate results on Appendix A.4 from their respective Form I's. Calculate and report RPD on Appendix A.4 when sample and its Field Duplicate values are both > 5xCRQL. Calculate and report the absolute difference on Appendix A.4 when at least one value (sample or duplicate) is <5xCRQL. Evaluate the aqueous Field Duplicate analysis in accordance with the

Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP:	HW-2	Revision	13		Append	lix A.1		Sept.	. 20	06
		QC criteria	stated	in Sect:	ions A.1	.19.2 and	<u>YES</u> A.1.19.3			N/A
	Ī	NOTE: 1. Do not tran. 2. Do not calcommoderate and the street control of the street and the str	ulate RPD DL for CR is >CRQL calculate value > C	when both QL when MI and the c the absol RQL and th	h values a DL > CRQL. other valu lute diffence MDL, an	are non-dete de is erence dd use				
A.1.19	1.2	Circle all v for Field Du				endix A.4)	1			
		RPD <u>≥</u> 20%	or					•		
		Difference >	+ CRQL							
		When sample both >5xCRQL MDL > CRQL),								
		is any RPD ≥	20%?					[_]	
	:	is any RPD ≥	100%?					[_]	
	i 1 2	ACTION: If the RPD is the associate results > CRO and red-line Field Duplica	ed samp: QL. If to only the	le and i the RPD ne assoc	ts Field is \geq 100 iated sa	l Duplicat %, reject	e (R)			
.1.19.	i	When the samp SXCRQL (subs s the absolution duplicate	titute M 1te diff	DL for C	RQL when	MDL >CRQL)	,			
	>	· ± CRQL?					************	[_)	
	>	· <u>+</u> 2 x CRQL?	,			·		[_}	
	I	CTION: f the absolu lag detects nd non-detec	≥ MDL b	ut < 5x0	CRQL as	" J"				

is > 2xCRQL, reject (R) and red-line non-detects

Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

and results > MDL but <5xCRQL of the sample and its Field Duplicates A.1.19.4 Was a soil field duplicate pair collected and analyzed? (Check Sampling Trip Report) ACTION: If yes, for each soil Field Duplicate pair, Report on Appendix A.4 for each Field Duplicate pair, Report on Appendix A.4 all sample and its Field Duplicate results in MG/KG from their respective Form I's. Calculate and report RPD when sample and its duplicate values are both greater than 5xCRQL. Calculate and report the absolute difference when at least one value (sample or duplicate) is < 5xCRQL. Evaluate the Field Duplicate analysis in accordance with the QC Criteria stated in Sections A.1.19.5 and A.1.19.6. NOTE: 1. Do not transfer *** from Form I's to Appendix A.4. 2. Do not calculate RDD when both values are non-detects. 3. Substitute MDL for CRQL when MDL > CRQL. 4. If one value is > CRQL and the other value is non-detect, calculate the absolute difference between the value > CRQL and the MDL, and apply the criteria to qualify the results. A.1.19.5 Circle on each Appendix A.4 all values that have: RPD ≥ 35%, or Difference > ± 2xCRQL When sample and duplicate values are both > 5xCRQL (substitute MDL for CRQL when MDL > CRQL), is any RPD ≥ 35% but < 120%?	SOP: HW-	-2 Revision 13	Appendix A.1	S	ept. 20	06
A.1.19.4 Was a soil field duplicate pair collected and analyzed? (Check Sampling Trip Report) ACTION: If yes, for each soil Field Duplicate pair proceed as follows: Prepare Appendix A.4 for each Field Duplicate pair. Report on Appendix A.4 all sample and its Field Duplicate results in MG/KG from their respective Form I's. Calculate and report RPD when sample and its duplicate values are both greater than 5xCRQL. Calculate and report the absolute difference when at least one value (sample or duplicate)is < 5xCRQL. Evaluate the Field Duplicate analysis in accordance with the QC Criteria stated in Sections A.1.19.5 and A.1.19.6. NOTE: 1. Do not transfer "" from Form I's to Appendix A.4. 2. Do not calculate RPD when both values are non-detects. 3. Substitute MDL for CRQL when MDL > CRQL. 4. If one value is SCRQL and the other value is non-detect, calculate the absolute difference between the value > CRQL and the MDL, and apply the criteria to qualify the results. A.1.19.5 Circle on each Appendix A.4 all values that have: RPD ≥ 35*, or Difference > ± 2xCRQL When sample and duplicate values are both ≥ 5xCRQL (substitute MDL for CRQL when MDL > CRQL).				YES	<u>NO</u>	N/A
collected and analyzed? (Check Sampling Trip Report) ACTION: If yes, for each soil Field Duplicate pair proceed as follows: Prepare Appendix A.4 for each Field Duplicate pair. Report on Appendix A.4 all sample and its Field Duplicate results in MG/KG from their respective Form I's. Calculate and report RPD when sample and its duplicate values are both greater than SxCRQL. Calculate and report the absolute difference when at least one value (sample or duplicate)is < 5xCRQL. Evaluate the Field Duplicate analysis in accordance with the QC Criteria stated in Sections A.1.19.5 and A.1.19.6. NOTE: 1. Do not transfer "*" from Form I's to Appendix A.4. 2. Do not calculate RPD when both values are non-detects. 3. Substitute MDL for CRQL when MDL > CRQL. 4. If one value is xCRQL and the other value is non-detect, calculate the absolute difference between the value > CRQL and the MDL, and apply the criteria to qualify the results. A.1.19.5 Circle on each Appendix A.4 all values that have: RPD ≥ 35%, or Difference > ± 2xCRQL When sample and duplicate values are both ≥ 5xCRQL (substitute MDL for CRQL when MDL > CRQL).		Soil/Sediment Field D	uplicates			
If yes, for each soil Field Duplicate pair proceed as follows: Prepare Appendix A.4 for each Field Duplicate pair. Report on Appendix A.4 all sample and its Field Duplicate results in MG/KG from their respective Form I's. Calculate and report RPD when sample and its duplicate values are both greater than 5xCRQL. Calculate and report the absolute difference when at least one value (sample or duplicate)is < 5xCRQL. Evaluate the Field Duplicate analysis in accordance with the QC Criteria stated in Sections A.1.19.5 and A.1.19.6. NOTE: 1. Do not transfer "*" from Form I's to Appendix A.4. 2. Do not calculate RPD when both values are non-detects. 3. Substitute MDL for CRQL when MDL > CRQL. 4. If one value is >CRQL and the other value is non-detect, calculate the absolute difference between the value > CRQL and the MDL, and apply the criteria to qualify the results. A.1.19.5 Circle on each Appendix A.4 all values that have: RPD ≥ 35%, or Difference > ± 2xCRQL When sample and duplicate values are both ≥ 5xCRQL (substitute MDL for CRQL when MDL > CRQL),	A.1.19.4	collected and analyzed?	-	[]	_	·
pair. Report on Appendix A.4 all sample and its Field Duplicate results in MG/KG from their respective Form I's. Calculate and report RPD when sample and its duplicate values are both greater than 5xCRQL. Calculate and report the absolute difference when at least one value (sample or duplicate)is < 5xCRQL. Evaluate the Field Duplicate analysis in accordance with the QC Criteria stated in Sections A.1.19.5 and A.1.19.6. NOTE: 1. Do not transfer "*" from Form I's to Appendix A.4. 2. Do not calculate RPD when both values are non-detects. 3. Substitute MDL for CRQL when MDL > CRQL. 4. If one value is >CRQL and the other value is non-detect, calculate the absolute difference between the value > CRQL and the MDL, and apply the criteria to qualify the results. A.1.19.5 Circle on each Appendix A.4 all values that have: RPD ≥ 35%, or Difference > ± 2xCRQL When sample and duplicate values are both ≥ 5xCRQL (substitute MDL for CRQL when MDL > CRQL),		If yes, for each soil F				
1. Do not transfer "*" from Form I's to Appendix A.4. 2. Do not calculate RPD when both values are non-detects. 3. Substitute MDL for CRQL when MDL > CRQL. 4. If one value is >CRQL and the other value is non-detect, calculate the absolute difference between the value > CRQL and the MDL, and apply the criteria to qualify the results. A.1.19.5 Circle on each Appendix A.4 all values that have: RPD > 35%, or Difference > ± 2xCRQL When sample and duplicate values are both > 5xCRQL (substitute MDL for CRQL when MDL > CRQL),		pair. Report on Appendix Field Duplicate results respective Form I's. Cal sample and its duplicate than 5xCRQL. Calculate a absolute difference wher (sample or duplicate) is Field Duplicate analysis	x A.4 all sample and its in MG/KG from their loulate and report RPD was values are both greated and report the at least one value < 5xCRQL. Evaluate the in accordance with the	when . er		
values that have: RPD > 35%, or Difference > ± 2xCRQL When sample and duplicate values are both > 5xCRQL (substitute MDL for CRQL when MDL > CRQL),		1. Do not transfer "*" from F 2. Do not calculate RPD when 3. Substitute MDL for CRQL whe 4. If one value is >CRQL and t value is non-detect, calculabsolute difference between value > CRQL and the MDL, as	both values are non-detects. n MDL > CRQL. he other ate the the nd apply			
When sample and duplicate values are both > 5xCRQL (substitute MDL for CRQL when MDL > CRQL),	A.1.19.5		A.4 all			
is any RPD > 35% but < 120%? [] is any RPD > 120%? []		When sample and duplicate are both ≥ 5xCRQL (substi	e values			
is any RPD ≥ 120%? []		is any RPD ≥ 35% but < 12	20%?		[]	
		is any RPD ≥ 120%?			[]	_

If the RPD is \geq 35% but < 120%,

SOP: HW-	2 Revision 13	Appendix A.1	5	Sept. 20	06
	flag only the associated and its Field Duplicate : > CRQL as "J". If the RPI reject (R) and red-line (and its Field Duplicate)	results D is <u>></u> 120%, only the sample	YES	<u>NO</u>	<u>N/A</u> .
A.1.19.6	When the sample and/or do <5xCRQL (substitute MDL fo is the absolute difference and Field Duplicate:	r CRQL when MDL > CRQL),			
	> <u>+</u> 2 x CRQL?			[]	<u> </u>
	> <u>+</u> 4 x CRQL?			[]	
	ACTION: If the absolute difference sample and its Field Dupl but <5xCRQL as "J" and not lif the difference is >4xC red-line non-detects and <5xCRQL of the sample and	icate resuts > MDL on-detects as "UJ". CRQL, reject(R) and detects > MDL but			·
A.1.20	Laboratory Control Sample	(LCS) - Form VII			
A.1.20.1	Was one LCS prepared and	analyzed for:			
	Each SDG?				
	Each matrix type?			**********	
	Each batch samples digest For each Method(ICP-AES,Iused?				
	Was an LCS prepared and as the samples? ACTION:	nalyzed with	[]		
	If no for any of the above Telephone Record Log and CLP PO or TOPO for submits LCS results. Flag (J) as the data for which an LCS analyzed.	contact tal of the estimated all			
	NOTE: If only one LCS was analyzed fo	r			

Standard Operating Procedure

USEPA Region 2
Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

		•		,
SOP: HW-	2 Revision 13 Ap	ppendix A.1		t. 2006
	more than 20 samples, then the firs 20 samples analyzed are not flagged but all additional samples must be qualified (J).		<u>YES</u>	<u>NO N/A</u>
A.1.20.2	Aqueous LCS			
	Circle on each Form VII the L recoveries outside control li			
	NOTE: 1.Use digested ICV as LCS for 2.Use distilled ICV as LCS for			
	Is any LCS recovery:			
	Less than 50%?		(
	Between 50% and 79%?		[
	Between 121% and 150%?		[.	
	Greater than 150%?			
	ACTION: If the LCS recovery is less the reject (R) and red-line all as sample data (detects & non-detected a recovery between 50-79%, flactions as "J" all non-detects as "UJ" recovery is between 121-150%, detects as "J". if the recover than 150%, reject (R) and red-	ssociated sects); for g detects . if the LCS flag only y is greater		
A.1.20.3	Solid LCS			
	If an analyte's MDL is equal to greater than the true value of disregard the "Action" below for analyte even though the LCS is control limits.	LCS, or that		
	Is the LCS "Found" value greate than the Upper Control Limit reported on Form VII?	er	[_/	/

ACTION:

Evaluation of Metals Data for the Contract Laboratory Program Data Assessment and Contract Compliance Review

SOP: HW-2	Revision 13 A	opendix A.1	Se	pt. 20	06
	If yes, flag (J) all the asso detects <u>></u> MDL as estimated (J		YES	NO	N/A
	Is the LCS "Found" value lowe than the Lower Control Limit reported on Form VII?	r			
	ACTION: If yes, flag detects as "J" a non-dectes as "UJ".	nd			
A.1.21	ICP-AES/ICP-MS Serial Dilut NOTE: Serial dilution analysis is req when the initial concentration is eq greater than 50 x MDL.	uired only			
A.1.21.1	Was a Serial Dilution analysis performed:	5			
	For each SDG?				
	On one of the SDG samples?				
	For each matrix type?		[_]		 ·
	For each concentration range (low or med.)?		[]		
	Was a Serial Dilution sample analyzed with the SDG samples?	,	[_]		
	ACTION: If no for any of the above, fl as estimated (J) detects \(\simeq \) MDI all the SDG samples for which ICP Serial Dilution Analysis w not performed.	of the			
	Was a Field Blank or PE sample for the Serial Dilution Analys				
•	ACTION: If yes, flag as estimated (J) MDL of all the SDG samples	detects			
A.1.21.3	Circle on Form VIII the Percen	t Differences			

(%D) between sample results and its dilution results that are outside the control limits \pm 10%

SOP: HW	-2 Revision 13	Appendix A.1	Sept.	2006
	when initial concentrat	cions ≥ 50 x MDLs.	<u>YES</u> <u>NO</u>	<u>N/A</u>
	Are results outside the limits flagged with an on Form VIII and all Fo	"E"(Lab Qualifier)	[]	
	<u>ACTION:</u> If no, write in the Cor Non-Compliance Section Review Narrative.			
A.1.21.4	Are any %D values:			
	> 10%?			_1 /
	≥ 100%?		[_	<u> </u>
	ACTION: If the Percent Differen greater than 10%, flag all associated samples if the %D is > 100%, rall associated samples	(J) as estimated whose raw data ≥ MDL; eject (R) and red-line	·	
	(NOTE:Replace "E" with "J'	or "R" as appropriate.)		
A.1.22	Total/Dissolved or Inore	ganic/Total Analytes		
A.1.22.1	Were any analyses perfordissolved as well as toton the same sample(s)? Were any analyses perfordinorganic as well as toton the same sample(s)?	cal analytes		í
	ACTION: If yes, prepare a Form (to compare the difference dissolved (or inorganic) analyte concentrations. difference on Appendix A of the total analyte onl the following conditions	es between and total Compute each .5 as a percent y when both of		
	(1) The dissolved(or ino is greater than total c(2) greater than or equal	oncentration, and		
A.1.22.2	Is any dissolved (or inoconcentration greater that total concentration by mo	an its	ſĵ	

Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP: HW-2	Revision 13	Appendix A.1	Se	ept. 2006	
		······································	YES	NO N/A	
A.1.22.3	Is.any dissolved(or concentration greate total concentration	r than its			
	and total concentrat	oth dissolved/inorganic ions as estimated. If re than 50%, reject (R)			
A.1.23	Field Blank - Form I NOTE: Designate "Field	l Blank" as such on Form I			
A.1.23.1	Was a Field/Rinsate I and analyzed with the		[]		
	If yes, is any Field, absolute value of an greater than its CRQI			[_] _	
	If yes, circle the Fi on Form I that is gre CRQL, (or 2 x MDL when MD	eater than the		·	
	Is any Field Blank vathan CRQL also greate Preparation Blank val	er than the	 .		
	If yes, is the Field (> CRQL and > the pre already rejected due criteria?	ep. blank value)	[]		

ACTION:

If the Field Blank value was not rejected, reject all associated sample data (except the Field Blank results) greater than the CRQL but less than the Field Blank value. Reject on Form I's the soil sample results whose raw values in ug/L in the instrument printout are greater than the CRQL but less than the Field Blank value in ug/L. Flag as "J" detects between the Field Blank value and 10xField Blank value. If the sample result > MDL but < CRQL, replace it with CRQL-U.

If the Field Blank value is less than the

Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP: HW-	2 Revision 13	Appendix A.1	S	ept. 2	2006
	Prep.Blank value, do not qua		<u>YES</u>	NO	N/A
	results due to the Field Bla	nk criteria.			
	NOTE: 1. Field Blank result previously r due to other criteria cannot be qualify field samples.				
	2. Do not use Rinsate Blank associ soils to qualify water samples				
A.1.24	Verification of Instrumental	Parameters - Form	IX, XA,	XB, XI	
A.1.24.1	Is verification report prese	nt for:			•
	Method Detection Limits (For	m IX-Annually)?			
	<pre>ICP-AES Interelement Correct (Form XA & XB -Quarterly)?</pre>	ion Factors	(
	ICP-AES & ICP-MS Linear Range (Form XI-Quarterly)?	25	(\angle)		
	ACTION: If no, contact CLP PO/TOPO for submittal from the laboratory				
A.1.24.2	Method Detection Limits - Form	n IX			
A.1.24.2.1	Are MDLs present on Form IX f	for:			,
	All the analytes?				
	All the instruments used?				
	Digested and undigested				
	samples and Calib.Blanks?		[]		
	ICP-AES and ICP-MS when both				
	instruments are used for the same analyte?				
	same analyte:		\J		
	ACTION:				
	If no for any of the above, pr	repare			
	mal and an array of the second	T			

If no for any of the above, prepare Telephone Record Log and contact CLP PO/TOPO for submittal of the MDLs from the laboratory. Report to CLP PO and write in the Contract Problems/
Non-Compliance Section of the Data Review Narrative if the MDL concentration is not less than ½ CRQL.

SOP: HW-2	Revision 13	Appendix A.1	S∈	pt. 2006
			YES	NO N/A
A.1.24.2.2	Is MDL greater than to for any analyte?	he CRQL		
	If yes, is the analyte on Form I greater than the sample analyzed or whose MDL exceeds CRQI	n 5 x MDL for n the instrument	[]	
	ACTION: If no, flag as estimate values less than five the analyte whose MDL	times MDL for		
A.1.24.3	Linear Ranges - Form >	KI		
A.1.24.3.1	Was any sample result the high linear range or ICP-MS?			
	Was any sample result the highest calibration for mercury or cyanide	on standard		I]
	If yes for any of the the sample diluted to result reported on For	obtain the	[]	
	ACTION: If no, flag (J) as est affected detects (≥ MD on Form I.			
A.1.25	ICP-MS Tune Analysis	- Form XIV		
A.1.25.1	Was the ICP-MS instrum tuned prior to calibra		[]	
	ACTION: If no, reject (R) and sample data for which performed.			
	Was the tuning solutio or scanned at least fi consecutively?		[]	
	Were all the required spanning the analytica present in the tuning	l range	[]	
	Was the mass resolutio	n within		•

Evaluation of Metals Data for the Contract Laboratory Program Data Assessment and Contract Compliance Review

SOP: HW-2	Revision 13 Appendix	A.1	Sept. 2006
		<u>YES</u>	NO N/A
0.l amu f	or each isotope in the tuning solution?	(
	Was %RSD less than 5% for each isotope of each analyte in the tuning solution?	[]	
	ACTION: If no for any of the above, qualifall results > MDL associated with Tune as estimated "J", and all nor associated with that Tune as "UJ".	that 1-detects	
A.1.26	ICP-MS Internal Standards - Form X	<u>cv</u>	
A.1.26.1	Were the Internal Standards added to all the samples and all QC samples and calibration standards (except the Tuning Solution)?	()	
	Were all the target analyte masses bracketed by the masses of the five internal standards?	· ()	
	ACTION: If none of the Internal Standards added to the samples, reject (R) at red-line all the associated sample (detects & non-detects). If international standards were used but did not continuously the analyte results not bracket the internal standard masses.	nd data al ver all red-line	
A.1.26.2	Was the intensity of an Internal Standard in each sample within 60-1 of the intensity of the same Internal Standard in the calibration blank?		
	If no, was the original sample dilutwo fold, Internal Standard added a sample re-analyzed?		
	Was the %RI for the two fold dilute within the acceptance limits (60-12		
	ACTION: If no for any of the above, flag de as "J" and non-detects "UJ" of all analytes with atomic masses betwee	the	

atomic mass of the internal standard lighter

Standard Operating Procedure

USEPA Region 2
Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP: H	IW - 2	Revision 1	.3	Appendix A.2		Sept. 2006	
than t	the a	atomic ma	ternal standard ss of the inter affected intern	nal standard hea	ıvier		
A.1.27	7	Percent So	olids of Sedime	nts			
A.1.27	7.1	Are perce	nt solids in se	diment(s):			
		< 50%?				[<u>_</u>]	
		ACTION: If yes, qualify as estimated (J) all detects and non-detects of a sample that has percent solids less than 50%(i.e., moisture content greater than 50%).					
		that were no	y the sample result ot previously flagg c QC criteria.				
			·				
T= 0 = 0		a Dotto Di	orriore Norrat	4			
THOLO	dill	C Data Ri	<u>eview Narrat</u>	<u>Tve</u>			
Case#			Site:		Matrix: S	oil	
SDG#			Lab:		_ _	iter	
Sampli	ng Te	eam:	Revie	ewer:	Otl	ner	
<u>4</u> .2.1]	The				red by the d	ata validator and m	ust
J	· -		This flag indic	cates the result	qualified as	estimated	
R	R and Red-Line - A red-line drawn through a sample result indicates unusable value The red-lined data are known to contain significant errors based documented information and must not be used by the data user.						
ប	U - This data validation qualifier is applied to sample results MDL when associated blank is contaminated						
F	ully	Usable Data	- The resul	ts that do not	carry "J" or '	red-line" are fully	,
.2.2 <u>I</u>	abor	atory Qual:	<u>ifiers</u> :				

.

The CLP laboratory applies a contractual qualifier on all

Site: Glen Isle

Laboratory: TestAmerica, Inc. **Report No.:** 480-73951-2

Reviewer: Christina Rink/Laboratory Data Consultants for RXR Glen Isle Partners

Date: February 10, 2015

Samples Reviewed and Evaluation Summary

FIELD ID	LAB ID	FRACTIONS VALIDATED
LT-C-035 (4-6)	480-73951-6	Arsenic
CC-C-022 (0-2)	480-73951-7	Arsenic
CC-C-019 (0-2)	480-73951-8	Arsenic
LT-C-035 (4-6)MS	480-73951-6MS	Arsenic
LT-C-035 (4-6)MSD	480-73951-6MSD	Arsenic

All samples in this SDG underwent SPLP extraction

Associated QC Samples(s):

Field/Trip Blanks: None Associated Field Duplicate pair: None Associated

The above-listed soil samples were collected on January 7, 2015 through January 9, 2015 and were analyzed for arsenic by SW-846 methods 6010C. The data validation was performed in accordance with the USEPA Region 2 Standard Operating Procedure for the Evaluation of Metals for the Contract Laboratory Program, SOP HW-2, Revision 13 (September 2006) and the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, EPA 540-R-10-011 (January 2010), modified as necessary to accommodate the non-CLP methodologies used.

The inorganic data were evaluated based on the following parameters:

- Overall Evaluation of Data and Potential Usability Issues
- Data Completeness
- Holding Times and Sample Preservation
- Instrument Calibration
- Contract Required Quantitation Limit (CRQL) Standard Recoveries
- Blank Analysis Results
- Inductively Coupled Plasma (ICP) Interference Check Sample (ICS) Results
- Matrix Spike (MS) Results
- Laboratory Duplicate Results
- Field Duplicate Results
- Laboratory Control Sample (LCS)
- Serial Dilution Results
- Detection Limits Results
- Sample Quantitation Results

Overall Evaluation of Data and Potential Usability Issues

All results are usable as reported.

The validation findings were based on the following information.

Data Completeness

The data package was complete as defined under the requirements for the NYSDEC ASP category B laboratory deliverables.

Holding Times and Sample Preservation

All criteria were met.

Instrument Calibration

All criteria were met.

CRQL Standard Recoveries

All criteria were met.

Blank Results

No analytes were detected in the laboratory method and instrument blank samples.

No field blanks were identified in this SDG.

ICP ICS Results

All analytes were within control limits in the ICSA and ICSAB analyses.

MS/MSD Results

The laboratory performed MS and MSD analyses on sample LT-C-035 (4-6) for arsenic. All criteria were met.

Laboratory Duplicate Results

Laboratory duplicates were not associated with this sample set. Validation action was not required on this basis.

Field Duplicate Results

A field duplicate pair was not associated with this sample set. Validation action was not required on this basis.

LCS Results

All criteria were met.

Serial Dilution Results

A serial dilution analysis was performed on sample LT-C-035 (4-6) for arsenic. All criteria were met.

Detection Limits Results

Results were reported which were below the reporting limit (RL) and above the method detection limit (MDL). These results were estimated (J) by the laboratory.

Due to interfering analytes, select samples were analyzed at dilutions. The following table lists the sample dilutions which were performed and the results reported. RLs were elevated accordingly.

	Metal Analysis					
Sample	Reported					
LT-C-035 (4-6)	10-fold dilution due to high interfering analytes					

Sample Quantitation Results

Calculations were spot-checked; no discrepancies were noted.

DATA VALIDATION QUALIFIERS

- U The analyte was analyzed for, but due to blank contamination was flagged as nondetect (U). The result is usable as a nondetect.
- J Data are flagged (J) when a QC analysis fails outside the primary acceptance limits. The qualified "J" data are not excluded from further review or consideration. However, only one flag (J) is applied to a sample result, even though several associated QC analyses may fail. The 'J' data may be biased high or low or the direction of the bias may be indeterminable.
- UJ The analyte was not detected above the reported sample quantitation limit. Data are flagged (UJ) when a QC analysis fails outside the primary acceptance limits. The qualified "UJ" data are not excluded from further review or consideration. However, only one flag is applied to a sample result, even though several associated QC analyses may fail. The 'UJ' data may be biased low.
- R Data rejected (R) on the basis of an unacceptable QC analysis should be excluded from further review or consideration. Data are rejected when associated QC analysis results exceed the expanded control limits of the QC criteria. The rejected data are known to contain significant errors based on documented information. The data user must not use the rejected data to make environmental decisions. The presence or absence of the analyte cannot be verified.

LDC #: 33693B4b	VALIDATION COMPLETENESS WO
SDG #: 480-73951-2	Cat B

ORKSHEET Cat B

Reviewer: 0 2nd Reviewer:

Laboratory: Test America, Inc.

METHOD: As (EPA SW 846 Method 6010C)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	AIA	
11.	Instrument Calibration	A	
III.	ICP Interference Check Sample (ICS) Analysis	A	
IV.	Laboratory Blanks	A	
V.	Field Blanks	\sim	
VI.	Matrix Spike/Matrix Spike Duplicates	A	WRD
VII.	Duplicate sample analysis	N	
VIII.	ICP Serial Dilution	A	
IX.	Laboratory control samples	A	LCS
X.	Field Duplicates	\mathcal{N}	
XI.	Sample Result Verification	A	mollsander RiJdet.
LXII	Overall Assessment of Data	A	`

Note:

A = Acceptable

ND = No compounds detected

D = Duplicate

SB=Source blank

N = Not provided/applicable

R = Rinsate FB = Field blank TB = Trip blank EB = Equipment blank OTHER:

SW = See worksheet Samples in this SDG underwent SPLP East extraction

	es in this SDG underwent SPLP East extraction		1	
	Client ID	Lab ID	Matrix	Date
1	LT-C-035 (4-6) DIOX due to interfering elements	480-73951-6	Soil	01/07/15
2	CC-C-022 (0-2)	480-73951-7	Soil	01/09/15
3	CC-C-019 (0-2)	480-73951-8	Soil	01/09/15
4	LT-C-035 (4-6)MS	480-73951-6MS	Soil	01/07/15
5	LT-C-035 (4-6)MSD	480-73951-6MSD	Soil	01/07/15
6				
7				
8				
9				
10				
11				
12				
13				
14				

Notes:_		
	Samples under went SPLP extractor	

VALIDATION FINDINGS WORKSHEET Initial and Continuing Calibration Calculation Verification

Page:_	(_of
Reviewer:_	or
2nd Reviewer:	

METHOD: Trace metals (EPA SW 846 Method 6010/6020/7000)

An initial and continuing calibration verification percent recovery (%R) was recalculated for each type of analysis using the following formula:

 $%R = Found \times 100$ True

Where, Found = concentration (in ug/L) of each analyte <u>measured</u> in the analysis of the ICV or CCV solution True = concentration (in ug/L) of each analyte in the ICV or CCV source

Standard ID	Type of Analysis	Element	Found (ug/L)	True (ug/L)	Recalculated %R	Reported %R	Acceptable (Y/N)
ICV	ICP (Initial calibration)	As	037485	0.375	100	100	7
	ICP/MS (Initial calibration)						
	CVAA (Initial calibration)						
œV	ICP (Continuing calibration)	As	0.48637	0.5	97	97	7
	ICP/MS (Continuing calibration)					,	
	CVAA (Continuing calibration)						

Comments:		

LDC #: 3369

VALIDATION FINDINGS WORKSHEET Level IV Recalculation Worksheet

Page:_	(of /
Reviewer:	9
2nd Reviewer:	\triangle

METHOD: Trace Metals (EPA SW 846 Method 6010/6020/7000)

Percent recoveries (%R) for an ICP interference check sample, a laboratory control sample and a matrix spike sample were recalculated using the following formula:

 $%R = Found \times 100$

Where, Found = Concentration of each analyte measured in the analysis of the sample. For the matrix spike calculation,

True

Found = SSR (spiked sample result) - SR (sample result).

True = Concentration of each analyte in the source.

A sample and duplicate relative percent difference (RPD) was recalculated using the following formula:

 $RPD = \underline{|S-D|} \times 100$ (S+D)/2

S = Original sample concentration

D = Duplicate sample concentration

An ICP serial dilution percent difference (%D) was recalculated using the following formula:

 $%D = |I-SDR| \times 100$

Where, I = Initial Sample Result (mg/L)

SDR = Serial Dilution Result (mg/L) (Instrument Reading x 5)

Sample ID	Type of Analysis	Element	Found / S / I	True / D / SDR (units)	Recalculated %R / RPD / %D	Reported %R / RPD / %D	Acceptable (Y/N)
ISAB	ICP interference check	As	0.103 mg/L	O. I mell	5	63)-(
LCS	Laboratory control sample		0.937	1	94	94	
4	Matrix spike		(SSR-SR)	1,00	99	99	
415	Duplicate		1.1836	1.1839	\bigcirc	0	
1	ICP serial dilution	1	0.70	NO	NC	K	4

Comments:		 					
	 			 -			

LDC#: 3343 715

VALIDATION FINDINGS WORKSHEET Sample Calculation Verification

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Page: _____ of ____ Reviewer: ______ 2nd reviewer: ______

METHOD: Trace Metals (EPA SW 846 Method 6010/6020/7000)

	N/A N/A N/A	Are results w	been reported vithin the calibration limits below	ated range o	of the instrument	s and within the line	ear range of the IC	P?
Detect equation		te results for _			H5			using the following
Concent	tration =	(RD)(FV)(Dil) (In. Vol.)			Recalculation:	1 1 (a = a = 0	15 m
RD FV In. Vol. Dil	= = = =	Raw data conce Final volume (m Initial volume (m Dilution factor	i)	M2	0.019	Stroll (1		13117
#	Si	ample ID		Analyte		Reported Concentration	Calculated Concentration	Acceptable (Y/N)
					AS	0.20	0.20	7
		2				0.0059	0.0059	
						0,36	0.60,36	4
		<u> </u>			<u></u>			
				 -				
				··				
			<u>.</u>					
								
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ļ	 							
	 							
	 							
	<u> </u>				<u></u>			-
	 							
		· · · · · · · · · · · · · · · · · · ·			· · · · · · · · · · · · · · · · · · ·			
Note:_								

Standard Operating Procedure
USEPA Region 2
Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

50P:	HW-2 Revis	ion 13	Appendix A.1	S	ept. 2006	
				<u>YES</u>	NO · N/A	
A.I.I	Contract Comp Present?	<u>liance Screenir</u>	ng Report			
	ACTION:	If no, contac	ct RSCC/PO.			
A.I.2	Record of Com	munication (fro	om RSCC)	•		
	Present?			[]		
	ACTION:	If no, reques	st from the RSCC.			
A.1.3	Sampling Trip F	Report		1		
		nd complete?		[]		
	ACTION:	If no, contac	et RSCC/PO.			
A.I.4	Chain of Custod	ly/Sample Traff	fic Report			
	Present?				·	
	Legible?					
	Signature of present?	of sample custo	odian			
	ACTION:	f no, contact RS	SCC/WAM/PO.			
A.I.5	Cover Page			_		
	Present?			_ ک		
	and the ver	er Page properly batim signed by r the manager's	y the lab	. 4		
	on the Cov	nple identification er Page agree w on numbers on:				
	(a) Traffic F	Report Sheet?				

Standard Operating Procedure

USEPA Region 2
Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP:	HW-2 Revision 13	Appendix A.1	Sept. 2006
4	(b) Form I's?		YES NO N/A
	Is the number of samp Page the same as the samples on the Traffic and the Regional Reco (ROC) for the data	number of Report sheet ord of Communication	[_]
	ACTION: If no for any of the about Telephone Record Log for re-submittal of the of from the laboratory.	and contact RSCC/PO	
A.1.6	SDG Narrative, DC-1 & DC-2	Form	
	Is the SDG Narrative p	resent?	
	Is Sample Log-In Shee present and complete?	t(Form DC-1)	
	Is Complete SDG Inver present and complete?	ntory Sheet(Form DC-2)	
	ACTION: If no, write in the Contra Non-Compliance Sec Narrative.	ct-Problems/ ction of the Data Review	
4.1.7 <u>F</u>	Form I to XV		
۸.1.7.1	Are all the Form I through labeled with:	gh Form XV	·
	Laboratory Name?		<u> </u>
	Laboratory Code?		<u></u> }_/
	RAS/Non-RAS Case No	.?	(<u></u>
	SDG No 2		[/]

Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP:	HW-2 Revision 13	Appendix A.1	Sept. 2006	
			YES NO N/A	
	Contract No.?			
A.1.7.2	ACTION: If no for any of the above, Contract Problem/Non-Coof the "Data Review Narra PO for corrected Form(s) After comparing values or against the raw data, do a transcription errors exceed reported values on the Fo	empliance Section ative" and contact from the laboratory. In Forms I-IX any computation/ d 10% of the		
	(a) all analytes analyzed by ICP	-AES?	_ 1/_	
	(b) all analytes analyzed by ICP	-MS?	_ [_] _	
((c) Mercury?		_ 🗆 🧹	
((d) Cyanide?		_ [] _/	
i	ACTION: If yes, prepare Telephone Recore and contact CLP PO/TOPO for the data from the laboratory.			
1	Raw Data Data shall not be validated wit hard/electronic copies of the a raw data for samples and QC s	ssociated		
A.1.8.1	Digestion/Distillation Log			
	Digestion Log for ICP-AES form XII)present?		<u> </u>	
	Digestion Log for ICP-MS orm XII) present?			
	Digestion Log for mercury Form XII) present?			
	Distillation Log for cyanide Form XII) present?			
А	re pH values for metals and			

Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP:	HW-2	Revision 13	Appendix A.1	Sept. 2006	
				YES NO N/A	
		e reported for each		/	
	aqueou	us sample?			
		cent solids calculations		. /	
	present	t for soils/sediments?		₩	
		paration dates present on the			
	sample	preparation logs/bench she	eets?		
	NOTE:				
		Distillation log must include weights, ons used to obtain the reported result			
A.1.8.2	2 Is	the analytical instrument			
	real-time	e printouts present for:			
	ICP-AES	S?		<u>_</u>	
	ICP-MS'	?	•		
	Mercury'	?			
	Cyanide	?			
		boratory bench sheets			
		rument raw data printouts ry to support all sample			
а		and QC operations:		·	
L	.egible?			1/	
۲	roperly la	abeled?		[A	
		d samples, QC samples QC samples present on:			
D	igestion/l	Distillation log?		<u> </u>	
Ir	ıstrument	t Printouts?		<u> </u>	

ACTION:

If no for any of the above questions in Section A.1.8.1 and Section A.1.8.2, write Telephone Record Log and contact TOPO/PO for re-submittal from the laboratory.

Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP: HW	-2 Revision 13	Appendix A.I	Sept. 2006
			YES NO N/A
(Exam deter	chnical Holding Times: (Aque nine sample Traffic Reports and digestion rmine the holding time from the sample of paration date.)	distillation logs to	
A.1.9.1	Cyanide distillation(14 days)exceeded?	_ 🔟 🦯
	Mercury analysis(28 days)	exceeded?	_ 🗀 🗹
	Other Metals analysis(180 o	days)exceeded?	[]
If y and if sa	TION: ves, reject (R) and red-line nond d flag as estimated (J)results ≥ mple(s) was preserved properl	MDL even	
a list whic be p the r (Sub from Attach	TE: ddition to qualifying the data, t of all samples and analytes ch exceeded the holding times must brepared. Report for each sample number of days that were exceeded. btract the sample collection date the sample preparation date). this list to the data review ative.		
A.1.9.2	is pH of aqueous samples for	or;	
Met	tals Analysis ≤ 2?		
Суа	anide Analysis ≥ 12?		
If no	TION: of for any of the above, flag detects as "R" and detects as "J"		
A.1.9.3 Is the	e cooler temperature ≤ 10 C°?		. 4
If co	FION: Poler temperature is >10 °C , flagedetects as "UJ" and detects as		
A.1.10 Fina	al Data Correctness - Form I		

A.1.10.1 Are Form I's for all samples

Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP:	HW-2	Revision 13	Appendix A.1	S	ept. 2	006
				YES	NO	N/A
	prese	ent and complete?				
	Log a	ON: prepare Telephone Recore and contact CLP PO/TOPC ittal from the laboratory.				
A.1.10	.2	•	ation and transcription errors in the le on each Form I all results that		ect.	
		ls the calculation error les	s than 10% of the correct result?	<u>.</u>		
		Are results on Form I's rep	ported in correct units (ug/L for ac	queous an	d ——	
		Are results on Form I'S rep	ported by correct significant figu	ıres? [_1 _	
		Are soil sample results on corrected for percent solid				
		Are all "less than MDL" val by the CRQLs and coded v	•			
	t	Are values less than the Ci out greater than or equal to DLs flagged with "J"?		[]		
		Are appropriate contractua ontrol and Method qualifier				
	þ	ACTION: f no for any of the above q repare Telephone Record CLP PO/TOPO for correcte	Log, and contact			
.1.10.3	a s	o EPA sample identification the corresponding labor ample identification numbers the Cover Page, Form I's the raw data?	ratory ers match	. []		

Was a brief physical description

Evaluation of Metals Data for the Contract Laboratory Program Data Assessment and Contract Compliance Review

SOP: HW-	2 Revision 13	Appendix A.1	Sept. 2006
			YES NO N/A
	of the samples before and digestion given on the For		
	Was any sample result ou mercury/cyanide calibration or the ICP-AES/ICP-MS lift diluted and noted on the F	on range near range	
	ACTION: If no for any of the above, the Contract-Problem/Non Section of the Data Review	-Compliance	
A.1.11 <u>Initi</u>	al Calibration		
A.1.11.1	Is a record of at least 2 po (A blank and a standard)capresent for ICP-AES analy	alibration	
	Is a record of at least 2 po (a blank and a standard)calibra present for ICP-MS analys	ation	
	Is a record of at least 5 po (a blank & 4 standards)presen		
	Is a record of at least 4 poi (a blank & 4 standards)present		
	ACTION: If incomplete or no initial cawas performed, reject (R) at the associated data (detection).	and red-line	
	Is one initial calibration star at the CRQL level for cyani mercury?		[]
	ACTION: If no, write in the Contract I Non-Compliance Section o Review Narrative.		
A.1.11.2	Is the curve correlation		

coefficient \geq 0.995 for:

Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP: HW-	2 Revision 13 Ap	opendix A.1	Sept. 2006
			YES NO N/A
	Mercury Analysis?		
	Cyanide Analysis?		
	ICP-AES (more than 2 point C	Calib.)?	
	ICP-MS (more than 2 point o		
	ACTION:		
	If no, qualify the associat results > MDL as estimated non-detects as "UJ". NOTE:		
	The correlation coefficient shall be calculated by the data validator using standard concentrations and th corresponding instrument response (e absorbance, peak area, peak height,	.g.	
A.1.12	Initial and Continuing Calibra	tion Verification	- Form IIA
A.1.12.1	Present and complete for eventual and cyanide?	ery	<u></u>
	Present and complete for ICI and ICP-MS when both these were used for the same analy	methods	[_] <i></i>
	ACTION: If no for any of the above, Telephone Record Log and cor for re-submittal from the la	tact PO/TOPO	
A.1.12.2	Was a Continuing Calibration Verification performed every 10 samples or every 2 hours whichever is more frequent?		[<u></u>
	ACTION: If no for any of the above, in the Contract-Problem/Non-Section of the Data Review N	Compliance	
.1.12.3	Was an ICV or a mid-range st distilled and analyzed with of cyanide samples?		

Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP: HW-2	Revision 13	Appendix A.1	Se	pt. 200	6
			YES	<u>NO</u> <u>N</u>	<u>/A</u>
	Section of the Dat	the above, write roblem/Non-Compliance ta Review Narrative and MDL as estimated (J).			
A.1.12.2	Circle on each Form IIA that are outside the con	•			
	Are ICV/CCVs within co	ontrol limits for:			
	Metals - 90-110%	R?	$\boxed{1}$		
	Hg - 80-120%R?	?	[]		_
	Cyanide - 85-115%	R?	[]		_
		s between a previous technically acuent technically acceptable CCV sta	•	CV	
	if the ICV/CCV %R is be Qualify only positive resibetween 111-125%(121 red-line only detects if the recovery is CN). Reject (R) and red-	all detects and non-detects, etween 75-89%(65-79% for Hg; 70-ults(≥ MDL) as "J" if the ICV/CCV %-135% for Hg;116-130% for CN). Regreater than 125% (135% for Hg; line all associated results (hits and seless than 75%(65% for Hg;70% for	6R is Reject (R) and 130% for Inon-		
	NOTE: For ICV that does not fall within to qualify all samples reported from				
	Was the distilled ICV or standard for cyanide with limits (85-115%)?	_	[]		_
	ACTION: If no, Qualify all cyanide	results ≥ MDL as "J".			

A.1.13 CRQL Standard Analysis - Form IIB

A.1.13.1 For each ICP-AES run, was a CRI

Standard Operating Procedure

USEPA Region 2
Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP: H	W-2 Rev	ision 13	Appendix A.1	S	ept. 2006
	tandard anal	OL when MDL > CR lyzed? CRI is not requir Mg, Na and K.)		YES	<u>NO N/A</u>
	(CRQL or analyze	th ICP-MS run, was r MDL when MDL > CF d for each mass/is analysis?	RQL) standard	[]	
		h mercury run, was d analyzed?	s a CRQL	[]	
		h cyanide run, was d analyzed?	a CRQL	[]	
IC IC	this defice Non-Core Narrative in the affected rare affected rare P-AES Analysis	any of the above, to ciency in the Control of the C	ract Problems/ of the Data Review and flag results ects <2xCRQL)as J CRQL CRQL		
Су		s - *True Value <u>+</u> (ralue of the CRQL	CRQL Standard		
A.1.13.2	ICV/ICB, once eve	RQL standard ana before the final CC ry 20 analytical sar tical run for each a	CV/CCB and mples in	[]	
	Non-Com	e in the Contract P pliance Section of view Narrative".			·
.1.13.3		each Form IIB all p s that are outside t			

acceptance windows.

Standard Operating Procedure

USEPA Region 2
Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP: HV	1-2 Revision 13	Appendix A.1	Sep	ot. 2006
	Is the CRQL standard within o	control	<u>YES</u>	NO N/A
	Metals(ICP-AES/ICP-MS)- 70) - 130%?		
	Mercury- 70 - 130%?		[]	_
	Cyanide - 70 - 130%?		[]	
	ACTION: If no, flag detects <2xCRQL as non-detects as "UJ" if the CRC recovery is between 50-69%. If detects <2xCRQL if the recove 131% and ≤180%. If the recove 150%, reject(R) and red-line redetects < 2xCRQL, and flag (J2xCRQL and ICV/CCV. Reject detects <2xCRQL and flag (J) but < ICV/CCV if the recovery	QL standard Flag(J) only ery is between very is less than on-detects and) detects between and red-line only detects ≥ 2xCRQL		
	NOTE: 1. Qualify all field samples an a previous technically accepthe CRQL standard and a substantially sister of the CRQL standard. 2. Flag (J) or reject (R) only sample results on Form I's wiraw data are within the affer and the CRQL standard is out acceptance windows. 3. The samples and the CRQL standard in the same analytic.	table analysis of equent acceptable d the final hen Sample cted ranges side the ndard must be		
.1.14 <u>Ini</u>	ial and Continuing Calibration E	<u> Blanks - Form III</u>	·	
1.14.1	Present and complete for all the instruments used for the metals and cyanide analyses?		[]	·
	Was an initial Calibration Blank analyzed after ICV?			
	Was a continuing Calibration Banalyzed after every CCV and a 10 samples or every 2 hours, was is more frequent?	every		
	Were the ICB & CCB values ≥ I reported on Form III and flagge			

Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP: HW-2	Revision 13	Appendix A.1	S	Sept. 2006
	using MDLs from direct ana Method "NP1")? (Check Form III against to ACTION: If no, inform CLP PO/TOPC in the Contract-Problems/No	lysis(Preparation the raw data) and make a note	YES	<u>NO</u> <u>N/A</u>
A.1.14.2	Section of the "Data Review Circle with red pencil on ead all Calib. Blank values that a	ch Form III		
	≥ MDL	_ but ≤ CRQL		
	> CRC	QL		
A.1.14.2.1	When MDL < CRQL, is any value > MDL but < CRQL?	Calib. Blank		
	ACTION: If yes, change sample result but ≤ CRQL to the CRQL wit Do not qualify non-detects.			
	nen MDL < CRQL, is any Cali ue > CRQL?	b. Blank		(
,	ACTION: If yes, reject (R) and red line associated sample results > 6 but <icb blank="" ccb="" detects="" result.=""> ICB/CCB blank value < 10xICB/CCB value. Change results > MDL but < the CRQ with a "U".</icb>	CRQL Flag as "J" ue but e the sample		
	ny Calibration Blank value ow the negative CRQL?		T-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1	<u></u>
 	ACTION: f yes, flag (J) as estimated al associated sample results > 0 <10xCRQL.			

QC Criteria, apply the action to all samples

1. For ICB that does not meet the technical

NOTE:

Evaluation of Metals Data for the Contract Laboratory Program

Data Assessment and Contract Compliance Review

SOP:	HW-2	Revision	13	Appendix A.1		Sept.	200	16
					YES	NO		<u> </u>
	2. For apply previous a sub-	ted from the analytic CCBs that do not me the action to all sar ous technically acce asequent technically in the analytical run	eet the techr nples analyz ptable analy acceptable	zed between a vsis of CCB and				
A.1.1	15	NOTE: The Prepa	ration Bl	- FORM III ank for mercury bration blank.				
A.1.1	.5.1	Was one Prewith and an		on Blank prepared for:				
		Each Sample	Delive	ery Group (SDG)?	[<u> </u>		
		Each batch digested/di		SDG samples 1?	[]		_	
		Each matrix	type?	·	[_	.j		
		All instrum and cyanide		sed for metals ses?	[]	.] _		
								-
		as estimate positive da	d (J) a ta <10x	the above, flag all the associated aMDL for which the was not analyzed.				
	t t	han 20 samples nalyzed are not	then the estimate	alyzed for more e first 20 samples ed(J),but all be qualified (J).		~		
4.1.15				cil on each Form III ues that are:				
		<u>></u> N	IDL but	\leq CRQL, and				
		>	CRQL				/	
1.15		Nhen MDL < 0 ralue ≥ MDL		s any preparation blan CRQL?	nk 	[<u>/</u>]	
	<u> A</u>	CTION:						

If yes, change sample result \geq MDL

Standard Operating Procedure

USEPA Region 2
Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP: HW-	-2 Revision 13	Appendix A.1		Sept.	20.06	
			YES	NO	<u>N/A</u>	
	but \leq CRQL to CRQL with \approx	a "U".				
A.1.15.2.	2 When the MDL \leq CRQL, is Blank value greater than	-		. [_		
	If yes, is the Prep. Blar greater than the value of Field Blank collected and the SDG samples?	the associated		[_]	_
	If yes, is the lowest conthat analyte in the associates than 10 times the Pr. Blank value?	iated samples		[_]	_
	ACTION: If yes, reject (R) and re sample results greater th than the Prep.Blank value detects > Prep. Blank val If the sample result > MD it with CRQL-U.	an the CRQL but less . Flag as "J" ue but <10xPrep.Blan)	k.			
	If the Prep. Blank value analyte value in the Field qualify the sample results Prep. Blank criteria.	d Blank, do not)			
	NOTE: Convert soil sample result to mg/K wet weight basis to compare with t Prep. Blank result on Form III.				-	
A.1.15.2.3	Is the Prep. Blank concent below the negative CRQL?	tration —		[]		
	ACTION: If yes, flag (J) all associant sample results less than 1 Qualify non-detects as est	0xCRQL.				
A.1.15.2.4	When the MDL is greater the CRQL, is the preparation be concentration on Form III than two times the MDL?	lank		[]	_	-

ACTION:

Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP: HW-	2 Revision 13 App	pendix A.1	Se	pt. 200	06
	If yes, reject (R) and red-l positive sample results with raw data less than 10 times Preparation Blank value.	ı sample	YES	<u>no</u> ī	1/ <u>4</u>
A.1.16	<pre>ICP-AES/ICP-MS Interference NOTE:Not required for CN, Hg, Al</pre>) - Forr	n IV	
A.1.16.1	Present and complete?		[]		
	Was ICS analyzed at the begi and end of each analytical r once for every 20 analytical	un, and	[]		
	Was ICS analyzed at the begithe ICP-MS analytical run?	nning of	[
	ACTION: If no, flag as estimated (J) sample results.	all			
1.16.2	ICP-AES Method				
1.16.2.1	ICSA Solution: For ICP-AES, are the ICSA "For values within the control lim of the true/established mean va	mits <u>+</u> of CRQL			
	If no for any of the above, sample concentration of Al, or Mg in the same units (ug/I greater than or equal to its concentration in the ICSA Sol Form IV?	Ca, Fe, or MG/KG) respective]		
	ACTION: If yes, apply the following a all samples analyzed between technically acceptable analysis of the ICS in the the ICS	a previous is of the lly acceptable			

Flag (J) as estimated only sample results $\geq MDL$

Evaluation of Metals Data for the Contract Laboratory Program Data Assessment and Contract Compliance Review

Revision 13 Appendix A.1 SOP: HW-2 Sept. 2006 NO for which the ICSA "Found" value is greater than (True value+CRQL). Do not qualify non-detects. If the ICSA "Found" value is less than (True value-CRQL), flag non-detects as "UJ" and detects as "J". A.1.16.2.3 ICSAB Solution For ICP-AES, are all analyte results in ICSAB within the control limits of 80-120 of the true/established mean value? If no for any of the above, is the sample concentration of Al, Ca, Fe, or Mg in the same units (ug/L or MG/KG) greater than or equal to its respective concentration in the ICSAB Solution on Form IV? ACTION: If yes, apply the following action to all samples analyzed between a previous technically acceptable analysis of the ICS and a subsequent technically acceptable analysis of the ICS in the analytical run: Flag (J) as estimated those associated sample results \geq MDL for which the ICSAB analyte recovery is greater than 120% but < 150%. If the ICSAB recovery falls within 50-79%, qualify sample results \geq MDL as "J" and non-detects as "UJ". Reject (R) and red-line all sample results (detects & non-detects) for which the ICSAB analyte recovery is less than 50%. If the recovery is above 150%, reject (R) and red-line only positive results. ICP-MS Method

A.1.16.3

A.1.16.3.1 ICSA Solution:

For ICP-MS, are the ICSA "Found" analyte values within the control limits of +CROL of the true/established mean value? ACTION:

If no, apply the following action to all samples reported from the analytical run:

Flag (J) as estimated only sample results > MDL if the ICSA "Found" value is greater than (True value+CRQL). Do not qualify non-detects. If the ICSA "Found" value is less than (True value-CRQL), flag the associated sample detects as "J" and non-detects as "UJ".

•

Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP: HW-2	Revision 13	Appendix A.l	S	ept. 2	2006
			YES	NO	N/A
A.1.16.3.3	ICSAB Solution For ICP-MS, are all and in ICSAB within the common structure of the true/est value, whichever is great structure.	ntrol limits of tablished mean	[]		
	ACTION: If no, apply the follow samples reported from t	the analytical run:			
	Flag (J) as estimated to sample results ≥ MDL for analyte recovery is green in the ICSAB refunction of the ICSAB refunction of the ICSAB refunction of the ICSAB analyte sample the ICSAB analyte sold. If the recovery is and red-line only detected.	eater than 120% but ecovery falls within mated the associated eject (R) and red-line as and non-detects for execovery is less than above 150%, reject (R)			
		Pre-Digestion/Pre-Distil Mg,K,and Na(both matrices);			
4.1.17.1	Was Matrix Spike analys	is performed:			
]	For each matrix type?		(
I	For each SDG?		[]		
(On one of the SDG sampl	es?	[]		
	For each concentration (i.e.,low, med., high)?	range			
	For each analytical Met ICP-AES,ICP-MS, Hg, CN,				
	as a spiked sample preparation		[] .		
I e f	CTION: f no for any of the about the position of the position	itive data			

If more than one spiked sample were

sample analysis.

analyzed for one SDG, then qualify the associated data based on the worst spiked

Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP: HW-	-2 Revision 13 App	endix A.1	Sept. 2006			
			<u>YES</u>	NO	<u>N/A</u>	
A.1.17.2	Was a field blank or PE sample for the spiked sample analysis?					
	ACTION: If yes, flag (J) as estimated produced and the associated SDG sampwhich field blank or PE sample for the spiked sample analysis.	les for was used				
A.1.17.3	Circle on each Form VA all spik recoveries that are outside the control limits (75-125%) that h sample concentrations less than times the added spike concentra	ave four				
	Are all recoveries within the control limits when sample concentrations are less than or equal to four times the spike concentrations? NOTE: Disregard the out of control spike recoveries for analytes whose concentrations are greater than or			-		
	equal to four times the spike added. Are results outside the control (75-125%) flagged with Lab Qualifon Form I's and Form VA?		[_]			
	ACTION: If no for any of the above, writthe Contract - Problems/Non-CompSection of the Data Review Narra	oliance				
1.17.4	Aqueous					
	Are any spike recoveries:					
	(a) less than 30%?			[]	_	
	(b) between 30-74%?			[]		
	(c) between 126-150%?			[]	<u></u>	
	(d) greater than 150%?			[]		
	ACTION: If the matrix spike recovery is 30%, reject (R) and red-line all aqueous data (detects & non-detect between 30-74%, qualify all associaqueous data > MDL as "J" and non	associated cts). If ciated				

Standard Operating Procedure

USEPA Region 2
Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP: HW-	Revision 13	Appendix A.1_	Se	ept. 200)6	
	as "UJ". If between		YES	<u>NO</u> N	<u> </u>	
		J". If greater than 150%, line all associated data \geq	MDL.		,	
	(NOTE:Replace "N" with	h "J", "R" as appropriate.)				
A.1.17.5	Soil/Sediment					
	Are any spike recove	eries:				
	(a) less than 10%?					
	(b) between 10-74%?					
	(c) between 126-200%	; ?				
	(d) greater than 200)%?				
	ACTION: If yes for any of thas follows:	ne above, proceed				
	if between 10-74%, qu data ≥ MDL as "J" an if between 126-200%, data ≥ MDL as "J" If (R) and red-line all					
.1.18	Lab Duplicates) - F	orm VI				
.1.18.1	Was the lab duplicate	e analysis performed:				
	For each SDG?		[_]			
	On one of the SDG sar	mples?	· (<u></u>)			
	For each matrix type	?				
	For each concentration (low or med.)?	on range	(\triangle)			
	For each analytical N (ICP-AES/ICP-MS,Hg,CN			Para Caracana de C		
	Was a lab duplicate panalyzed with the SDO		[_]			

Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP: HW	-2 Revision 13	Appendix A.1	Sept	. 2006
	ACTION: If no for any of the about the standard all the SDG saturated all the standard for	mple results for which the lab	<u>YES N</u>	<u>0 n/a</u>
	NOTE: If more than one lab duplicate were analyzed for an SDG, there the associated samples based worst lab duplicate analysis.	n qualify		
A.1.18.2	Was a Field Blank or PE of the Lab Duplicate and		[
	ACTION: If yes, flag as estimated SDG sample results (hits for which Field Blank or used for duplicate analy	& non-detects) : PE sample was		
A.1.18.3	Circle on each Form VI al	l values		
	RPD > 20%, or			
	Absolute Difference > CRQ	L		
	Are all values within conlimits (RPD \leq 20% or absodifference \leq \pm CRQL)?		<u> </u>	
	If no, are all results ou control limits flagged wi (Lab Qualifier) on Form VI all Form I's?	th an "*"	[]	
	ACTION: If no, write in the Control Non-Compliance Section of Review Narrative.			
	NOTE: The laboratory is not required report on Form VI the RPD when both values are non-detects.	to		
A.1.18.4	Aqueous			

A.1.18.4.1 When sample and duplicate values are both

> 5xCRQL (substitute MDL for CRQL when MDL > CRQL),

Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP: HW-2	Revision 13	Appendix A.1		Sept. 2006	
		,	YES	NO N/A	
	is any RPD > 20% but	: < 100%?		[_] _	
	is any RPD ≥ 100%?				
	15 dily RED 2 100%:			L	
	. CETON				
	ACTION: If the RPD is > 20%	but < 100%.			
	flag (J) as estimate				
	sample data \geq CRQL.				
	≥ 100%, reject (R) a associated sample da				
	associaced sample da	ca 2 chqu.		•	
	(NOTE:Replace "*" with "	J" or "R" as appropriate.)			
A.1.18.4.2	When the sample and/	or duplicate value			
•		OL for CRQL when MDL >CRQL),			
	and duplicate values	erence between sample			
	· ·	•			
	> ± CRQL?				
	> ± 2xCRQL?			[]	
	ACTION:				
	If the absolute diffe				
	flag as estimated all sample results > MDL				
	and non-detects as "l				
	difference is > 2xCR(•			
	red-line all the asso and detects > MDL but				
	NOTE:	•			
		"UJ" or "R" as appropriate.) and the other value is non-detect,			
	calculate the absolute	difference between the value > CR	_		
	and the MDL, and use to	his difference to qualify sample r	esults.		
A.1.18.5	Soil/Sediment				
A.1.18.5.1	When sample and dupli	cate values			
	are both > 5xCRQL (su)				
	CRQL when MDL > CRQL),				
	is any RPD ≥ 35% but	< 120%?			
	is any RPD ≥ 120%?				
:	ACTION:	•			
	If the RPD is \geq 35% a			·	
	(J) as estimated the	associated sample			

Evaluation of Metals Data for the Contract Laboratory Program Data Assessment and Contract Compliance Review

SOP: HW-2	Revision 13	Appendix A.1	,	Sept. 2	006
		the RPD is \geq 120%, reject the associated sample	YES	<u>NO</u>	<u>N/A</u>
A.1.18.5,2	<5xCRQL(substitut	and/or duplicate value e MDL for CRQL when MDL > CRQL), difference between sample			
	> ± 2 x CRQL?				
	> <u>+</u> 4 x CRQL				
	ACTION: If the absolute of	lifference is > 2 x CROL.			

If the absolute difference is $> 2 \times CRQL$, flag all the associated sample results \geq MDL but < 5xCRQL as "J" and non-detects as "UJ". If the absolute difference is > 4xCRQL, reject (R) and red-line all the associated non-detects and detects \geq MDL but <5xCRQL.

- 1. Replace "*" with "J", "UJ" or "R" as appropriate.)
- 2. If one value is >CRQL and the other value is non-detect, calculate the absolute difference between the value > CRQL and the MDL, and use this difference to qualify sample results.

A.1.19 Field Duplicates

Aqueous Field Duplicates

Was an aqueous Field Duplicate pair A.1.19.1 collected and analyzed? (Check Sampling Trip Report)

ACTION:

If yes, prepare a Form (Appendix A.4) for each aqueous Field Duplicate pair. Report the sample and Field Duplicate results on Appendix A.4 from their respective Form I's. Calculate and report RPD on Appendix A.4 when sample and its Field Duplicate values are both > 5xCRQL. Calculate and report the absolute difference on Appendix A.4 when at least one value (sample or duplicate) is <5xCRQL. Evaluate the aqueous Field Duplicate analysis in accordance with the

Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP:	HW-2	Revision	13		Appendix A	1.1		Sept.	20	06
							YES	NO		N/A
		QC criteria	stated in	n Sectio	ons A.1.19.	2 and A.I	1.19.3.			
	1	NOTE: 1. Do not tran: 2. Do not calco 3. Substitute MI 4. If one value non-detect, o between the o this the crit	ulate RPD wh DL for CRQL is >CRQL ar calculate th value > CRQI	hen both when MDL nd the ot he absolu L and the	values are no > CRQL. her value is te difference MDL, and use	on-detects.				
A.1.19	.2	Circle all v for Field Du				x A.4)				
		RPD > 20%	or							
		Difference >	+ CRQL							
		When sample both >5xCRQL MDL > CRQL),	_							
		is any RPD ≥	20%?					[_]	
		is any RPD ≥	100%?					[_]	_
	:	ACTION: If the RPD is the associate results > CRO and red-line Field Duplica	ed sample QL. If the only the	and its e RPD is associa	Field Dup $5 \ge 100$ %, rated sample	olicate reject(R)				
1.19.	Š	When the samp <5xCRQL (subs is the absolu and duplicate	titute MDL ite differ	for CRQ	L when MDL	>CRQL),				
	>	- + CRQL?						[.]	
	>	> <u>+</u> 2 x CRQL?						[_]	_
	I	ACTION: If the absolu Ilag detects								

and non-detects as "UJ". If the difference is > 2xCRQL, reject (R) and red-line non-detects

Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP: HW-	-2 Revision 13	Appendix A.1	Se	ept. 2006
	and results \geq MDL but <5 % and its Field Duplicate.	cCRQL of the sample	YES	NO N/A
	Soil/Sediment Field Dup	olicates		
A.1.19.4	Was a soil field duplicat collected and analyzed? (Check Sampling Trip Report)	-	[]	
	ACTION: If yes, for each soil Fie pair proceed as follows:	ld Duplicate		
	Prepare Appendix A.4 for pair. Report on Appendix Field Duplicate results in respective Form I's. Calculate and its duplicate than 5xCRQL. Calculate and absolute difference when a (sample or duplicate) is < Field Duplicate analysis of QC Criteria stated in Section	A.4 all sample and its n MG/KG from their ulate and report RPD walues are both greated report the at least one value 5xCRQL. Evaluate the in accordance with the	vhen er	
	NOTE: 1. Do not transfer "*" from Form 2. Do not calculate RPD when bot 3. Substitute MDL for CRQL when N 4. If one value is >CRQL and the value is non-detect, calculate absolute difference between the value > CRQL and the MDL, and the criteria to qualify the re-	th values are non-detects. MDL > CRQL. other e the he apply		
A.1.19.5	Circle on each Appendix A. values that have:	4 all		
	RPD > 35%, or Difference > When sample and duplicate are both > 5xCRQL (substitu CRQL when MDL > CRQL),	values		
	is any RPD ≥ 35% but < 120°	%?		
	is any RPD ≥ 120%?			

-37-

If the RPD is \geq 35% but < 120%,

Standard Operating Procedure

USEPA Region 2
Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP: HW-2	Revision 13	Appendix A.1	S	ept. 2006
	and its Field Do ≥ CRQL as "J". The reject (R) and respect (R)	ssociated sample uplicate results of the RPD is \geq 120%, red-line only the sample uplicate results \geq CRQL.	YES	NO N/A
A.1.19.6	<5xCRQL (substitu	and/or duplicate value(s) te MDL for CRQL when MDL > CRQL), difference between sample ate:		
	> ± 2 x CRQL?			
	> <u>+</u> 4 x CRQL?			
	Sample and its F but <5xCRQL as " If the differenc red-line non-det	difference is > 2xCRQL, flag ield Duplicate resuts > MDL J" and non-detects as "UJ". e is >4xCRQL, reject(R) and ects and detects > MDL but ample and its Field Duplicate.		·
A.1.20	Laboratory Contro	ol Sample (LCS) - Form VII		
A.1.20.1	Was one LCS prepa	ared and analyzed for:		
	Each SDG?	•	$\lfloor \angle \rfloor$	
	Each matrix type	?	[
		es digested/distilled? ICP-AES,ICP-MS,Hg,CN)		· -
<u>.</u>	the samples? ACTION: If no for any of Telephone Record CLP PO or TOPO fo	the above, prepare Log and contact or submittal of the g (J) as estimated all ch an LCS was not	[]	

If only one LCS was analyzed for

Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

		·			,
SOP: HW-	2 Revision 13	Appendix A.1		ept, 20	
	more than 20 samples, then the fir 20 samples analyzed are not flagge but all additional samples must be qualified (J).	(J) ,	<u>YES</u>	<u>NO</u>	<u>N/A</u>
A.1.20.2	Aqueous LCS				
	Circle on each Form VII the recoveries outside control l				
	NOTE: 1.Use digested ICV as LCS for 2.Use distilled ICV as LCS				
	Is any LCS recovery:				
	Less than 50%?			[]	_
	Between 50% and 79%?			[]	
	Between 121% and 150%?			[]	/
	Greater than 150%?		 .	[]	
	ACTION: If the LCS recovery is less to reject (R) and red-line all assample data (detects & non-detects as "United as "J" all non-detects as "United as "J" all non-detects as "United as "J". if the recovery than 150%, reject (R) and red	associated etects); for lag detects J". if the LCS flag only ery is greater			
A.1.20.3	Solid LCS				
	If an analyte's MDL is equal greater than the true value o disregard the "Action" below analyte even though the LCS is control limits.	f LCS, for that			
	Is the LCS "Found" value great than the Upper Control Limit reported on Form VII?	ter	[**********

ACTION:

Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP: HW-2	Revision 13 A	ppendix A.1	Se	ept. 2	006
	If yes, flag (J) all the assodetects \geq MDL as estimated (3)		YES	<u>NO</u>	N/A
	Is the LCS "Found" value lower than the Lower Control Limit reported on Form VII?	r		[]	
	ACTION: If yes, flag detects as "J" a non-dectes as "UJ".	nd			
A.1.21	ICP-AES/ICP-MS Serial Dilut NOTE:Serial dilution analysis is red when the initial concentration is ed greater than 50 x MDL.	quired only			
A.1.21.1	Was a Serial Dilution analysi performed:	S			
	For each SDG?				
	On one of the SDG samples?		[]		
•	For each matrix type?		[]		
	For each concentration range (low or med.)?		$[\underline{\hspace{1cm}}]$		
	Was a Serial Dilution sample analyzed with the SDG samples?	•			
	ACTION: If no for any of the above, flas estimated (J) detects \(\sum \) MDI all the SDG samples for which ICP Serial Dilution Analysis whot performed.	of the		/	
	Was a Field Blank or PE sample for the Serial Dilution Analys			[]	
	ACTION: If yes, flag as estimated (J) MDL of all the SDG samples	detects			

A.1.21.3 Circle on Form VIII the Percent Differences

(%D) between sample results and its dilution results that are outside the control limits \pm 10%

Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP: HW	-2 Revision 13	Appendix A.1	Sept. 2006
	when initial concentrations	≥ 50 x MDLs.	YES NO N/A
	Are results outside the con limits flagged with an "E"(on Form VIII and all Form I	Lab Qualifier)	
	ACTION: If no, write in the Contraction of the Review Narrative.		
A.1.21.4	Are any %D values:		
	> 10%?		_ (_) _
	≥ 100%?		_ 🖒 _
	<u>ACTION</u> : If the Percent Difference (% greater than 10%, flag (J) a all associated samples whose if the %D is \geq 100%, reject all associated samples with	is estimated raw data \geq MDL; (R) and red-line	·
	(NOTE:Replace "E" with "J" or "	R" as appropriate.)	
A.1.22	Total/Dissolved or Inorganic	/Total Analytes	
A.1.22.1	Were any analyses performed dissolved as well as total as on the same sample(s)? Were any analyses performed inorganic as well as total as on the same sample(s)?	nalytes for	
	ACTION: If yes, prepare a Form (Apperto compare the differences be dissolved (or inorganic) and tanalyte concentrations. Compadifference on Appendix A.5 as of the total analyte only whe the following conditions are	etween cotal ate each a percent an both of	
	(1) The dissolved(or inorgani is greater than total concent(2) greater than or equal to	tration, and	
A.1.22.2	Is any dissolved (or inorgani concentration greater than it total concentration by more times.	s	

Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP: HW-2	Revision 13	Appendix A.1	Se	pt. 2006
			YES	NO N/A
A.1.22.3	Is any dissolved (or inorgation concentration greater than total concentration by most	n its		
	ACTION: If the percent difference than 20%, flag (J) both di and total concentrations at the difference is more than and red-line both the value.	issolved/inorganic as estimated. If an 50%, reject (R)	·	
A.1.23	Field Blank - Form I NOTE: Designate "Field Blank	u as such on Form I		
A.1.23.1	Was a Field/Rinsate Bank o and analyzed with the SDG		[]	
	If yes, is any Field/Rinsa absolute value of an analy greater than its CRQL(or 2:	te on Form I		· []
	If yes, circle the Field E on Form I that is greater CRQL, (or 2 x MDL when MDL > CRQ	than the		
	Is any Field Blank value g than CRQL also greater tha Preparation Blank value?			
	If yes, is the Field Blank (> CRQL and > the prep. bl already rejected due to ot criteria?	ank value) .	[]	

ACTION:

If the Field Blank value was not rejected, reject all associated sample data (except the Field Blank results) greater than the CRQL but less than the Field Blank value. Reject on Form I's the soil sample results whose raw values in ug/L in the instrument printout are greater than the CRQL but less than the Field Blank value in ug/L. Flag as "J" detects between the Field Blank value and 10xField Blank value. If the sample result > MDL but < CRQL, replace it with CRQL-U.

If the Field Blank value is less than the

Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP: HW	-2 Revision 13	Appendix A.1	S	Sept. 2	2006
	Prep.Blank value, do results due to the Fi	not qualify the sample ield Blank criteria.	<u>YES</u>	<u>NO</u>	<u>N/A</u>
	NOTE: 1. Field Blank result predue to other criteria qualify field samples. 2. Do not use Rinsate Blassoils to qualify water	cannot be used to			
A.1.24	Verification of Instr	rumental Parameters - Form	n IX, XA,	XB, XI	<u>.</u>
A.1.24.1	Is verification repor	t present for:			
	Method Detection Limi	ts (Form IX-Annually)?			
	ICP-AES Interelement (Form XA & XB -Quarte				
	<pre>ICP-AES & ICP-MS Line (Form XI-Quarterly)?</pre>	ar Ranges	[_]		
	ACTION: If no, contact CLP PO, submittal from the la				
1.1.24.2	Method Detection Limits	s - Form IX			
.1.24.2.	1 Are MDLs present on Fo	orm IX for:			,
	All the analytes?				
	All the instruments us	sed?			
	Digested and undigeste samples and Calib.Blan				
	ICP-AES and ICP-MS whe instruments are used f same analyte?		[]		_
	ACTION: If no for any of the all Telephone Record Log as PO/TOPO for submittal of	nd contact CLP			

the laboratory. Report to CLP PO and

Non-Compliance Section of the Data Review Narrative if the MDL concentration is not

write in the Contract Problems/

less than % CRQL.

Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP: HW-2	Revision 13	Appendix A.1	Se	ept. 2006
A.1.24.2.2	2 Is MDL greater than t	he CRQL	<u>YES</u>	NO N/A
	for any analyte? If yes, is the analyte on Form I greater tha the sample analyzed o whose MDL exceeds CRQ	n 5 x MDL for n the instrument	()	
	ACTION: If no, flag as estima values less than five the analyte whose MDL	times MDL for		
A.1.24.3	Linear Ranges - Form	XI		
A.1.24.3.1	Was any sample result the high linear range or ICP-MS?			
	Was any sample result the highest calibration for mercury or cyanide	on standard		
	If yes for any of the the sample diluted to result reported on For	obtain the	[]	
	ACTION: If no, flag (J) as est affected detects (≥ MI on Form I.			
A.1.25	ICP-MS Tune Analysis	- Form XIV		
A.1.25.1	Was the ICP-MS instrumtuned prior to calibrate		[]	
	ACTION: If no, reject (R) and sample data for which performed.			
	Was the tuning solution or scanned at least ficonsecutively?		[]	
	Were all the required spanning the analytica present in the tuning	l range	[]	
	Was the mass resolution	m within		•

Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP: HW-2	Revision 13 Appen	dix A.1	<u></u>	Sept. 2	006
			YES	NO N	<u>'A</u>
0.l amu f	or each isotope in the tuning solution?		[]		
	Was %RSD less than 5% for each isotope of each analyte in the tuning solution?		[]		
	ACTION: If no for any of the above, qualification and all associated with that Tune as	with that l non-detects			
A.1.26	ICP-MS Internal Standards - Fo	orm XV			
A.1.26.1	Were the Internal Standards acto all the samples and all QC samples and calibration standa (except the Tuning Solution)?]		
	Were all the target analyte masses bracketed by the masses of the five internal standards		(<u>·</u> _)		
	ACTION: If none of the Internal Standa added to the samples, reject (red-line all the associated sa (detects & non-detects). If in standards were used but did not the analyte masses, reject (R) only the analyte results not be the internal standard masses.	R) and mple data ternal t cover all and red-line			
A.1.26.2	Was the intensity of an Intern Standard in each sample within of the intensity of the same I Standard in the calibration bl	60-125% nternal]		
	If no, was the original sample two fold, Internal Standard adsample re-analyzed?]		
	Was the %RI for the two fold diwithin the acceptance limits (]		
	ACTION: If no for any of the above, fla as "J" and non-detects "UJ" of analytes with atomic masses be	all the			

atomic mass of the internal standard lighter

Standard Operating Procedure

USEPA Region 2
Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP: HW-2	Revision :	13 Ap	pendix A.2	Sept. 2006
than the	atomic ma	nternal standard, assess of the internal affected internal s	standard heavie	r
A.1.27	Percent S	olids of Sediments		
A.1.27.1	Are perce	nt solids in sedime	ent(s):	
	< 50%?			
	non-detec	ualify as estimated ts of a sample that 50%(i.e.,moisture c	has percent so	lids
	that were n	y the sample results ot previously flagged r QC criteria.		
		•		
				·
Inorgan:	<u>le Data R</u>	<u>eview Narrative</u>	2	
Case#		Site:		Matrix: Soil
SDG#		Lab:		Water
Sampling T	'eam:	Reviewer	:	Other
Th			n applied in re	d by the data validator and must
J -		This flag indicate	s the result qua	alified as estimated
R and	Red-Line -	The red-lined data	are known to c	result indicates unusable value. ontain significant errors based or. ot be used by the data user.
ប -		This data validati		applied to sample results
Fully	Usable Data	- The results <u>usable</u> .	that do not carr	y "J" or "red-line" are fully
	ratory Qual	<u>ifiers:</u> ory applies a contr	actual qualifien	on all

Glen Isle, NYSDEC, Project Number: RWI1401

Site:

Glen Isle

Laboratory: Report No.:

TestAmerica, Inc. 480-74220-1

Reviewer:

Christina Rink/Laboratory Data Consultants for RXR Glen Isle Partners

Date:

February 10, 2015

Samples Reviewed and Evaluation Summary

FIELD ID	LAB ID	FRACTIONS VALIDATED
LT-G-022 (0-2)	480-74220-1	Arsenic and Lead
LT-GI-001 (4-6)	480-74220-2	Lead
LT-GI-001 (4-6)MS	480-74220-2MS	Lead
LT-GI-001 (4-6)MSD	480-74220-2MSD	Lead

Associated QC Samples(s):

Field/Trip Blanks: N

None Associated

Field Duplicate pair: None Associated

The above-listed soil samples were collected on January 14, 2015 and were analyzed for arsenic and lead by SW-846 methods 6010C. The data validation was performed in accordance with the USEPA Region 2 Standard Operating Procedure for the Evaluation of Metals for the Contract Laboratory Program, SOP HW-2, Revision 13 (September 2006) and the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, EPA 540-R-10-011 (January 2010), modified as necessary to accommodate the non-CLP methodologies used.

Glen Isle, NYSDEC, Project Number: RWI1401

The inorganic data were evaluated based on the following parameters:

- Overall Evaluation of Data and Potential Usability Issues
- Data Completeness
- Holding Times and Sample Preservation
- Instrument Calibration
- Contract Required Quantitation Limit (CRQL) Standard Recoveries
- Blank Analysis Results
- Inductively Coupled Plasma (ICP) Interference Check Sample (ICS) Results
- Matrix Spike (MS) Results
- Laboratory Duplicate Results
- Field Duplicate Results
- Certified Reference Material (CRM) Results
- Serial Dilution Results
- Moisture Content
- Detection Limits Results
- Sample Quantitation Results

Overall Evaluation of Data and Potential Usability Issues

All results are usable as reported or usable with minor qualification due to sample matrix quality control outliers.

The validation findings were based on the following information.

Data Completeness

The data package was complete as defined under the requirements for the NYSDEC ASP category B laboratory deliverables.

Holding Times and Sample Preservation

All criteria were met.

Instrument Calibration

All criteria were met.

CRQL Standard Recoveries

All criteria were met.

Blank Results

No analytes were detected in the laboratory method and instrument blank samples.

No field blanks were identified in this SDG.

Laboratory Job 480-74220-1, Inorganics, Page 2 of 5

ICP ICS Results

All analytes were within control limits in the ICSA and ICSAB analyses.

MS/MSD Results

The laboratory performed MS and MSD analyses on sample LT-GI-001 (4-6) for lead. The following table lists the analytes which exhibited recoveries outside of the control limits of 75 - 125% in the MS/MSD and the resulting validation actions.

MS Sample	Analyte	MS %R	MSD %R	RPD (Limits)	QC Limits	Associated Samples	Validation Actions
LT-GI-001 (4-6)MS/MSD	Lead	-	-	109 (≤35)	-	LT-G-022 (0-2) LT-GI-001 (4-6)	J detects

Estimate (J) the detect lead results for the samples listed above due to high MS/MSD relative percent difference (RPD) results. The direction of the bias cannot be determined from this nonconformance. The results are usable for project objectives as estimated values which may have a minor effect on the data usability.

Laboratory Duplicate Results

Laboratory duplicates were not associated with this sample set. Validation action was not required on this basis.

Field Duplicate Results

A field duplicate pair was not associated with this sample set. Validation action was not required on this basis.

CRM Results

All criteria were met.

Serial Dilution Results

A serial dilution analysis was performed on sample LT-GI-001 (4-6) for metals. Analytes that did not meet the criteria are summarized in the following table.

Diluted Sample	Analyte	%D (Limits)	Associated Samples	Validation Actions
LT-GI-001 (4-6)	Lead	11 (≤10)	LT-G-022 (0-2)	J detects
·			LT-GI-001 (4-6)	

The detect results for lead were qualified as estimated (J) due to high percent difference in the serial dilution analysis. The direction of the bias cannot be determined from this nonconformance.

The results can be used for project objectives as estimated values which may have a minor impact on the data usability.

Moisture Content

All criteria were met.

Detection Limits Results

No results were reported below the reporting limit (RL).

No dilutions were required.

Sample Quantitation Results

Calculations were spot-checked; no discrepancies were noted.

DATA VALIDATION QUALIFIERS

- U The analyte was analyzed for, but due to blank contamination was flagged as nondetect (U). The result is usable as a nondetect.
- J Data are flagged (J) when a QC analysis fails outside the primary acceptance limits. The qualified "J" data are not excluded from further review or consideration. However, only one flag (J) is applied to a sample result, even though several associated QC analyses may fail. The 'J' data may be biased high or low or the direction of the bias may be indeterminable.
- UJ The analyte was not detected above the reported sample quantitation limit. Data are flagged (UJ) when a QC analysis fails outside the primary acceptance limits. The qualified "UJ" data are not excluded from further review or consideration. However, only one flag is applied to a sample result, even though several associated QC analyses may fail. The 'UJ' data may be biased low.
- R Data rejected (R) on the basis of an unacceptable QC analysis should be excluded from further review or consideration. Data are rejected when associated QC analysis results exceed the expanded control limits of the QC criteria. The rejected data are known to contain significant errors based on documented information. The data user must not use the rejected data to make environmental decisions. The presence or absence of the analyte cannot be verified.

	\mathcal{C}	
LDC #:_	33693 / 04b	_
SDG #:	480-74220-1	

Laboratory: Test America, Inc.

VALIDATION COMPLETENESS WORKSHEET

Cat B

2nd Reviewer

METHOD: As & Pb (EPA SW 846 Method 6010C)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A,A	
11.	Instrument Calibration	A	
III.	ICP Interference Check Sample (ICS) Analysis	A	
IV.	Laboratory Blanks	A	
V.	Field Blanks	I IV	
VI.	Matrix Spike/Matrix Spike Duplicates	RW.	
VII.	Duplicate sample analysis	\mathcal{N}	
VIII.	ICP Serial Dilution	SW	
IX.	Laboratory control samples	A	ORN)
X.	Field Duplicates	N	
XI.	Sample Result Verification	A	all 7RL, all ® IX
XII	Overall Assessment of Data	LA	

Note:

A = Acceptable

N = Not provided/applicable SW = See worksheet

ND = No compounds detected

R = Rinsate FB = Field blank D = Duplicate

TB = Trip blank EB = Equipment blank SB=Source blank

OTHER:

	Client ID	Lab ID	Matrix	Date
1	LT-G-022 (0-2)	480-74220-1	Soil	01/14/15
2	LT-GI-001 (4-6)	480-74220-2	Soil	01/14/15
3	LT-GI-001 (4-6)MS	480-74220-2MS	Soil	01/14/15
4	LT-GI-001 (4-6)MSD	480-74220-2MSD	Soil	01/14/15
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				

LDC#: 33693015

VALIDATION FINDINGS WORKSHEET Sample Specific Element Reference

Page: of Pag

All circled elements are applicable to each sample.

<u></u>		
Sample ID	<u>Matrix</u>	Target Analyte List (TAL)
1		Al, Sb(As) Ba, Be, Cd, Ca, Cr, Co, Cu, Fe,Ph, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
2		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe (Pb), Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
Q:34		Al, Sb, 🔊 Ba, Be, Cd, Ca, Cr, Co, Cu, Fe(Pt), Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
	<u></u>	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
		Analysis Method
ICP		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
ICP-MS		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
GFAA		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Sn, Ti,

Comments:	Mercury by CVA	A if performe	ed		 	

VALIDATION FINDINGS WORKSHEET Matrix Spike/Matrix Spike Duplicates

	Page:_		_
	Reviewer:_	a	
2nd	Reviewer:	A	_

METHOD: Trace metals (EPA SW 846 Method 6010B/6020A/7000)

Please see qua	alifications below for all questions answered "N". Not applicable questions are identified as "N/A".
MON N/A	Was a matrix spike analyzed for each matrix in this SDG?
AK AND N/A	Were matrix spike percent recoveries (%R) within the control limits of 75-125? If the sample concentration exceeded the spike concentration by a factor

of 4 or more, no action was taken.

Were all duplicate sample relative percent differences (RPD) \leq 20% for water samples and \leq 35% for soil samples? Y N/A W

Were recalculated results acceptable? See Level IV Recalculation Worksheet for recalculations.

#	MS/MSD ID	Matrix	Analyte	MS %Recovery	MSD %Recovery	RPD (Limits)	Associated Samples	Qualifications
	3/4	S	Pb			109(535)	AII	JIWIA (Bed)
)
$\ - \ $								
\mathbb{H}			1	†	<u> </u>			
$\lVert - \rVert$								
Н				<u> </u>				
$\ \cdot \ $				 				
		_ (] > /	1	_l	<u> </u>		<u> </u>	

Comments:_	P574X			

LDC# 33693C45

VALIDATION FINDINGS WORKSHEET ICP Serial Dilution

Page: 1 of 1
Reviewer: 93
2nd Reviewer:

METHOD: Trace Metals (EPA SW 846 Method 6010/6020/7000)

Please see qualifications below for	Il questions answered "N". N	lot applicable questions are identified as "N/A".
-------------------------------------	------------------------------	---

<u>ON N/A</u> If analyte concentrations were > 50X the MDL (ICP) ,or >100X the MDL (ICP/MS), was a serial dilution analyzed?

VN N/A Were ICP serial dilution percent differences (%D) ≤10%?

N N/A Is there evidence of negative interference? If yes, professional judgement will be used to qualify the data.

LEVEL IV ONLY:

<u>N N/A</u> Were recalculated results acceptable? See Level IV Recalculation Worksheet for recalculations.

#	Diluted Sample ID	Matrix	1		Associated Samples	Qualifications
П	2	5	Analyte P5	%D(Limits)	AU	Jolet (A (Det)
						Jdet (A (Det)
$\parallel \parallel$						
\parallel						
	and the second s					
$\lVert - vert$						
		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~				
			<u> </u>			
$\  \cdot \ $			<u> </u>			
$\  \cdot \ $						
		<u> </u>	<u> </u>			

Comments:		

## **VALIDATION FINDINGS WORKSHEET Initial and Continuing Calibration Calculation Verification**

	Page:_	(_of/_	
	Reviewer:	or	
2nd	Reviewer:		
	^		

**METHOD:** Trace metals (EPA SW 846 Method 6010/6020/7000)

An initial and continuing calibration verification percent recovery (%R) was recalculated for each type of analysis using the following formula:

%R = <u>Found</u> x 100 True

Where, Found = concentration (in ug/L) of each analyte <u>measured</u> in the analysis of the ICV or CCV solution True = concentration (in ug/L) of each analyte in the ICV or CCV source

					Recalculated	Reported	
Standard ID	Type of Analysis	Element	Found (ug/L)	True (ug/L)	%R	%R	Acceptable (Y/N)
FCVco	ICP (Initial calibration)	Ph (	5,36788	0.375	98	98	4
	ICP/MS (Initial calibration)						
	CVAA (Initial calibration)						
Cevaria	ICP (Continuing calibration)	As	6,47418	0,5	95	95	7
	ICP/MS (Continuing calibration)			·			,
	CVAA (Continuing calibration)						

Comments:		

## **VALIDATION FINDINGS WORKSHEET Level IV Recalculation Worksheet**

	Page:_	_ (	of_/	
	Reviewer:		Q	
2nd	Reviewer:	_ (		
	-		$\overline{}$	

METHOD: Trace Metals (EPA SW 846 Method 6010/6020/7000)

Percent recoveries (%R) for an ICP interference check sample, a laboratory control sample and a matrix spike sample were recalculated using the following formula:

 $%R = Found \times 100$ 

Where, Found = Concentration of each analyte measured in the analysis of the sample. For the matrix spike calculation, Found = SSR (spiked sample result) - SR (sample result).

True

True = Concentration of each analyte in the source.

A sample and duplicate relative percent difference (RPD) was recalculated using the following formula:

 $RPD = |S-D| \times 100$ 

Where, S = Original sample concentration

(S+D)/2

D = Duplicate sample concentration

An ICP serial dilution percent difference (%D) was recalculated using the following formula:

 $%D = |I-SDR| \times 100$ 

Where, I = Initial Sample Result (mg/L)

SDR = Serial Dilution Result (mg/L) (Instrument Reading x 5)

Sample ID	Type of Analysis	Element	Found / S / I	True / D / SDR (units)	Recalculated  %R / RPD / %D	Reported %R / RPD / %D	Acceptable (Y/N)
ICSAP)60	ICP interference check	PAS	0.10667	0.1	107	107	<u> </u>
CRM	Laboratory control sample	AS	114.1	150	76.0	76,0	
3	Matrix spike	Pb	(SSR-SR) -\S6.6	41.7	NACTIN	-377	
34	Duplicate	Pb	1844	G28.0	109	109	
2	ICP serial dilution	Ph	341.33	380.48	()	551	+

Comments:				 	
***	<u> </u>		 	 	

LDC#: 3343045

## VALIDATION FINDINGS WORKSHEET Sample Calculation Verification

Page: ____of__ Reviewer: _____2nd reviewer: _____

METHOD: Trace Metals (EPA SW 846 Method 6010/6020/7000)

Y N Y N Y N	N/A Have results N/A Are results w	bw for all questions answered been reported and calculate vithin the calibrated range of to tion limits below the CRDL?	d correctly?			
Detect equati	ted analyte results for _ on:	2	·	were recalcula	ated and verified (	using the following
Concen RD FV In. Vol. Dil	tration = \frac{(RD)(FV)(Dil)}{(ln. Vol.)}  = Raw data conce = Final volume (m = Initial volume (n Dilution factor	entration Pb=	Recalculation: 3,0264 0.5015	ng/L(SOML)	=341	3mp/by
#	Sample ID	Analyte		Reported Concentration (mg/bg	Calculated Concentration	Acceptable (Y/N)
			As	76.6	76.5	7
	9	Λ	25	341	341	7
	-					
	/					
Note:_						

## Standard Operating Procedure

USEPA Region 2
Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP:	HW-2 Revis	ion 13	Appendix A.1	Sept. 2006
			_	YES NO N/A
A.l.I	Contract Comp Present?	<u>liance Screenii</u>	ng Report	
	ACTION:	If no, contac	ct RSCC/PO.	
A.I.2	Record of Com	munication (fro	om RSCC)	•
	Present?			
	ACTION:	If no, reques	st from the RSCC.	
A.1.3	Sampling Trip F	Report		1
	Present a	nd complete?		[] · /
	ACTION:	If no, contac	t RSCC/PO.	
A.I.4	Chain of Custoo	ly/Sample Traff	ic Report	
	Present?			
	Legible?			
	Signature present?	of sample custo	dian	
	ACTION:	f no, contact RS	CC/WAM/PO.	
A.I.5	Cover Page	•		
	Present?			
	and the ve	er Page properly rbatim signed by r the manager's	/ the lab	
	on the Cov	nple identificatio er Page agree v on numbers on:		
	(a) Traffic F	Report Sheet?		

Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP:	HW-2 Revision 13	Appendix A.1	Sept. 2006
	(b) Form I's?		YES NO N/A
	Is the number of samples the same as the same as the same as the samples on the Traffic and the Regional Rec (ROC) for the data	number of Report sheet ord of Communication	
		ove, prepare g and contact RSCC/PO corrected Cover Page	
A.1.6	SDG Narrative, DC-1 & DC-2	2 Form	
	Is the SDG Narrative p	resent?	
	Is Sample Log-In Shee present and complete?	· ·	
	Is Complete SDG Inverpresent and complete?	ntory Sheet(Form DC-2)	
	ACTION:  If no, write in the Control  Non-Compliance Se  Narrative.	act-Problems/ ction of the Data Review	
4.1.7 <u>F</u>	orm I to XV		
4.1.7.1	Are all the Form I through	gh Form XV	
	Laboratory Name?		<u> </u>
	Laboratory Code?		<u></u>
	RAS/Non-RAS Case No	o.?	( <u></u>
-	SDG No.?		1

Standard Operating Procedure
USEPA Region 2
Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP:	HW-2	Revision 13	Appendix A.1	Sept. 2006
				YES NO N/A
		Contract No.?		
A.1.7.	2	ACTION:  If no for any of the above Contract Problem/Non-Co of the "Data Review Narra PO for corrected Form(s) After comparing values or against the raw data, do a transcription errors exceed reported values on the Formatten Point Poi	ompliance Section ative" and contact from the laboratory. n Forms I-IX any computation/ ed 10% of the	
	(a) all	analytes analyzed by ICP	P-AES?	_ []
	(b) all	analytes analyzed by ICP	P-MS?	_ [] _
	(c) Me	ercury?	1	_ 🗆 🧹
	(d) Cy	vanide?		_ [] /
	and .co	<u>DN</u> :  , prepare Telephone Recolontact CLP PO/TOPO for to the laboratory.		·
A.1.8 .	hard/e	Data shall not be validated witelectronic copies of the a ata for samples and QC s	associated	
٦.1.8.1	İ	Digestion/Distillation Log		
	_	ion Log for ICP-AES (II)present?		
		ion Log for ICP-MS (II) present?		
		ion Log for mercury XII) present?		
		tion Log for cyanide XII) present?		
	Are pH	values for metals and		

Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP:	HW-2	Revision 13	Appendix A.1	Sept. 2006	
				YES NO N/A	
		reported for each s sample?			
		cent solids calculation for soils/sediments?	าร		
		paration dates presen preparation logs/bend			
	NOTE: Digestion/Dand dilution	Distillation log must include vons used to obtain the reporte	veights, volumes, ed results.		
A.1.8.2	2 Is real-time	the analytical instrume printouts present			
	ICP-AES	5?		<u> </u>	
	ICP-MS?	?			
	Mercury	?			
	Cyanide	?			
a	and instru necessar	boratory bench sheet ument raw data printo ry to support all samp and QC operations:	outs		
L	.egible?			<b>凶</b>	
F	Properly la	abeled?		LA	
		d samples, QC sampl QC samples present			
C	igestion/[	Distillation log?		<u> </u>	
lr	nstrument	: Printouts?		<u> </u>	

## ACTION:

If no for any of the above questions in Section A.1.8.1 and Section A.1.8.2, write Telephone Record Log and contact TOPO/PO for re-submittal from the laboratory.

# Standard Operating Procedure

USEPA Region 2
Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP: HW	1-2 Revision 13	Appendix A.1	Sept. 2006
			YES NO N/A
(Exar dete	chnical Holding Times: (Aque nine sample Traffic Reports and digestion ermine the holding time from the sample c eparation date.)	distillation logs to	
A.1.9.1	Cyanide distillation(14 days	s)exceeded?	_ U _
	Mercury analysis(28 days)	exceeded?	_ 🗀 🗹
	Other Metals analysis(180	days)exceeded?	[]
If y an if sa	CTION: yes, reject (R) and red-line non- id flag as estimated (J)results > ample(s) was preserved properl	MDL even	
In a a li: whi be the (Su fror Attac	OTE: addition to qualifying the data, st of all samples and analytes ch exceeded the holding times must prepared. Report for each sample number of days that were exceeded, btract the sample collection date in the sample preparation date). In this list to the data review rative.		
A.1.9.2	Is pH of aqueous samples for	or;	
Me	etals Analysis ≤ 2?		
Су	anide Analysis ≥ 12?		
lf n	TION: o for any of the above, flag n-detects as "R" and detects as "J"	·.	
A.1.9.3  s th	ne cooler temperature ≤ 10 C°?	)	
If co	TION:  poler temperature is >10°C, flague-detects as "UJ" and detects as		
A 1 10 Fin	al Data Correctness - Form I		

A.1.10.1 Are Form I's for all samples

Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP:	HW-2	2	Revision 13		Appendix A.1		Sept.	2006
-						YES	NO	<u>N/A</u>
	pres	ent a	and complete?				·	-
	Log a	, pre and	; pare Telephone Re contact CLP PO/T( from the laborator	OPO for				
A.1.10	).2		•		d transcription errors in th ch Form I all results that			
		ls t	ne calculation error	r less than 1	0% of the correct result?			
			results on Form I's JKG for soils)?	s reported ir	correct units (ug/L for ac	queous a	nd	<del></del>
		Are	results on Form 1'S	S reported b	y correct significant figu	ures? [	<u>_</u> 1	
			soil sample results ected for percent s		5	[]		
			all "less than MDL' ne CRQLs and cod	· · · · · · · · · · · · · · · · · · ·		[]		<u> </u>
	i	but g	values less than th greater than or equals s flagged with "J"?			[]		
			appropriate contrac ol and Method qual					
	- -	If no prep	ION: for any of the aborare Telephone Red PO/TOPO for corr	cord Log, ar				
1.10.3	a S	and to sample on the	PA sample identifiche corresponding I ble identification nu e Cover Page, For e raw data?	laboratory Imbers mato		. []		

Was a brief physical description

## Standard Operating Procedure

USEPA Region 2
Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP: HW-2	Revision 13	Appendix A.1	Sept. 2006
			YES NO N/A
	of the samples before and digestion given on the Form		[]
	Was any sample result outs mercury/cyanide calibration or the ICP-AES/ICP-MS line diluted and noted on the Fo	n range ear range	[]
	ACTION:  If no for any of the above, no the Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contract-Problem/Non-Contrac	Compliance	
A.1.11 <u>Initia</u>	al Calibration		
A.1.11.1	Is a record of at least 2 poin (A blank and a standard)cal present for ICP-AES analys	libration	
	Is a record of at least 2 poin (a blank and a standard)calibrat present for ICP-MS analysis	tion	[_]
	Is a record of at least 5 poin (a blank & 4 standards)present		
	Is a record of at least 4 point (a blank & 4 standards)present f		[]
	ACTION:  If incomplete or no initial call was performed, reject (R) ar the associated data (detects	nd red-line	
	Is one initial calibration stand at the CRQL level for cyanid mercury?		
	ACTION: If no, write in the Contract Pr Non-Compliance Section of t Review Narrative.		
.1.11.2	Is the curve correlation		

coefficient ≥ 0.995 for:

Standard Operating Procedure
USEPA Region 2
Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP: HW-	Revision 13 Ap	pendix A.1	Sep	pt. 2006
			YES	NO N/A
	Mercury Analysis?		[]	
	Cyanide Analysis?		[]	
	ICP-AES (more than 2 point 0	alib.)?		
	ICP-MS (more than 2 point of	alib.)?	f ]	
	ACTION:  If no, qualify the associated results > MDL as estimated non-detects as "UJ".  NOTE:  The correlation coefficient shall be calculated by the data validator using standard concentrations and the corresponding instrument response (elabsorbance, peak area, peak height,	"J" and e .g.	J	
A.1.12	Initial and Continuing Calibra	tion Verification-	- Form IIA	<u>-</u>
A.1.12.1	Present and complete for evenetal and cyanide?	ery	[]	·
	Present and complete for ICE and ICP-MS when both these were used for the same analy	methods	[]	
	ACTION: If no for any of the above, Telephone Record Log and cor for re-submittal from the la	tact PO/TOPO		
	Was a Continuing Calibration Verification performed every 10 samples or every 2 hours whichever is more frequent?		[]	<i></i>
	ACTION: If no for any of the above, in the Contract-Problem/Non- Section of the Data Review N	Compliance		
1	Was an ICV or a mid-range st distilled and analyzed with of cyanide samples?		ر ا	

Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP: H	W-2 Revision 13	Appendix A.1	Sept.	2006
			YES NO	N/A
	Section of the Da	the above, write roblem/Non-Compliance ta Review Narrative and MDL as estimated (J).		
A.1.12.2	Circle on each Form IIA that are outside the cor			
	Are ICV/CCVs within co	ontrol limits for:		
	Metals - 90-110%	sR?	[	
	Hg - 80-120%R	?	[] _	
	Cyanide - 85-115%	R?	[]	
		s between a previous technically uent technically acceptable CCV		
·	Qualify as estimated (J) if the ICV/CCV %R is be Qualify only positive resbetween 111-125%(121 red-line only detects if the recovery is CN). Reject (R) and reddetects) if the recovery is	V %R is . Reject (R) and g; 130% for nd non-		
	NOTE: For ICV that does not fall within qualify all samples reported from	the acceptance limits, n the analytical run.		
A.1.12.3	Was the distilled ICV or standard for cyanide wit limits (85-115%)?		[]	
	ACTION: If no, Qualify all cyanide	results ≥ MDL as "J".		

## A.1.13 CRQL Standard Analysis - Form IIB

A.1.13.1 For each ICP-AES run, was a CRI

## Standard Operating Procedure

USEPA Region 2
Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP:	HW-2	Revision 13	Appendix A.1	Sept. 2006
		QL or MDL when MDL > dard analyzed? (Note:CRI is not req Ca, Fe, Mg, Na and K	uired for Al, Ba,	YES NO N/A
		For each ICP-MS run, (CRQL or MDL when MDL analyzed for each mas for the analysis?	> CRQL) standard	[_]
		For each mercury run, standard analyzed?	was a CRQL	
		For each cyanide run, v standard analyzed?	vas a CRQL	[_]
	i a The aff	ACTION:  If no for any of the above this deficiency in the Control Non-Compliance Section Narrative, inform CLP Properties of the affected ranges (cand non-detects UJ.	ontract Problems/ on of the Data Review O and flag results detects <2xCRQL)as J	
j	ICP-MS Mercur Cyanide	ES Analysis - *True Value S Analysis - *True Value y Analysis - *True Value e Analysis - *True Value * True value of the C	e <u>+</u> CRQL e <u>+</u> CRQL e <u>+</u> CRQL	
1,13.2	C	Was a CRQL standard a CV/ICB, before the final once every 20 analytical he analytical run for eac	CCV/CCB and samples in	
	Īf N	ACTION: fno, write in the Contraction-Compliance Section Data Review Narrative".	of the	
1.13.3		Circle on each Form IIB a		

acceptance windows.

Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP: HW-2	Revision 13	Appendix A.1	Se	ept. 2006	
	Is the CRQL standard with limits for:	hin control	<u>YES</u>	NO N/A	
	Metals(ICP-AES/ICP-MS)	- 70 - 130%?	$\begin{bmatrix} \checkmark \end{bmatrix}$		
	Mercury- 70 - 130%?		[]	_ /	
	Cyanide - 70 - 130%?		[]		
	ACTION:  If no, flag detects <2xCRC non-detects as "UJ" if the recovery is between 50-69 detects <2xCRQL if the recovery and ≤180%. If the recovery is excRQL, and red-lir detects < 2xCRQL, and flag 2xCRQL and ICV/CCV. Redetects <2xCRQL and flag but < ICV/CCV if the recovery	CRQL standard  0%. Flag(J) only covery is between ecovery is less than he non-detects and ag (J) detects between eject and red-line only a (J)detects ≥ 2xCRQL			
	NOTE:  1. Qualify all field samples a previous technically as the CRQL standard and a sanalysis of the CRQL standard.  2. Flag (J) or reject (R) or sample results on Form I raw data are within the sand the CRQL standard is acceptance windows.  3. The samples and the CRQL analyzed in the same analysis.	oceptable analysis of subsequent acceptable ndard nly the final s when Sample affected ranges outside the			
1.14 <u>Initial</u>	and Continuing Calibration	on Blanks - Form III			
1.14.1	Present and complete for a the instruments used for the metals and cyanide analyse	e		·	
	Was an initial Calibration Banalyzed after ICV?	lank	[]		
	Was a continuing Calibratio analyzed after every CCV a 10 samples or every 2 hour is more frequent?	and every	[]		
	Were the ICB & CCB values reported on Form III and fla	<del></del>			

Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP: HW-2	Revision 13	Appendix A	. 1	Se	pt. 2006
	using MDLs from direct a Method "NP1")? (Check Form III agains		<u>Y</u> E	<u>s</u> 1	<u>NO N/A</u>
	ACTION:  If no, inform CLP PO/TO in the Contract-Problems Section of the "Data Revi	/Non-Compliance			
A.1.14.2	Circle with red pencil on eall Calib. Blank values that				
	≥ M	DL but ≤ CRQL			
	> C	RQL			
	When MDL < CRQL, is an value ≥ MDL but ≤ CRQL	-		_	
	ACTION: If yes, change sample res but ≤ CRQL to the CRQL Do not qualify non-detects	with a "U".			
	en MDL < CRQL, is any C ie > CRQL?	alib. Blank		-	<u></u>
; ; ; ;	ACTION:  If yes, reject (R) and red linguisted sample results out <icb blank="" ccb="" resulted="" tects=""> ICB/CCB blank of 10xICB/CCB value. Chairesults &gt; MDL but &lt; the CF with a "U".</icb>	> CRQL It. Flag as "J" value but nge the sample			
	ny Calibration Blank value ow the negative CRQL?				[ <u></u>
lf a	ACTION: f yes, flag (J) as estimated ssociated sample results 10xCRQL.				

## NOTE:

For ICB that does not meet the technical QC Criteria, apply the action to all samples

Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP: HW-	2 Revision 13	Appendix A.1	Se	ept. 20	06
2. Fo ap _l pre a s	ported from the analytical run.  or CCBs that do not meet the technical QC criterioly the action to all samples analyzed between a evious technically acceptable analysis of CCB and ubsequent technically acceptable analysis of the B in the analytical run.	a,	<u>YES</u>	_=	<u>A\n</u>
A.1.15	Preparation Blank - FORM NOTE: The Preparation Blank for medis the same as the calibration black	cury	·		
A.1.15.1	Was one Preparation Blank with and analyzed for:	prepared			·
	Each Sample Delivery Group	p (SDG)?	[]		
	Each batch of the SDG samp digested/distilled?	ples	[]		
	Each matrix type?		[  ]		
	All instruments used for and cyanide analyses?	netals			
	ACTION:  If no for any of the above as estimated (J) all the a positive data <10xMDL for Preparation Blank was not  NOTE:  If only one blank was analyzed for than 20 samples, then the first 20	associated which the analyzed.		~	
	than 20 samples, then the first 20 analyzed are not estimated(J), but a additional samples must be qualified	all			
	Circle with red pencil on e all Prep. Blank values that				
	$\geq$ MDL but $\leq$ CRQL,	and			
	> CRQL				
1.15.2.1	When MDL < CRQL, is any provalue $\geq$ MDL but $\leq$ CRQL?	eparation blank		[]	
	ACTION: If yes, change sample resu	lt ≥ MDL			

Standard Operating Procedure
USEPA Region 2
Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP: HW-	2 Revision 13	Appendix A.1		Sept. 2	20.06	
			YES	<u>NO</u>	<u>N/A</u>	
	but ≤ CRQL to CRQL with a	a "U".				
A.1.15.2.	2 When the MDL $\leq$ CRQL, is Blank value greater than				<u></u>	
	If yes, is the Prep. Blangreater than the value of Field Blank collected and the SDG samples?	f the associated		[	]	_
	If yes, is the lowest corthat analyte in the associates than 10 times the Problem Blank value?	ciated samples		[	]	_
	ACTION:  If yes, reject (R) and resample results greater the than the Prep.Blank value detects > Prep. Blank value than the sample result > MD it with CRQL-U.	an the CRQL but les . Flag as "J" ue but <10xPrep.Bla	s nk.			
	If the Prep. Blank value analyte value in the Field qualify the sample results Prep. Blank criteria.	d Blank, do not	me			
	NOTE: Convert soil sample result to mg/K wet weight basis to compare with t Prep. Blank result on Form III.			,		
A.1.15.2.3	Is the Prep. Blank concent below the negative CRQL?	tration		[_]		
	ACTION: If yes, flag (J) all associant sample results less than 1 Qualify non-detects as est	0xCRQL.				
	When the MDL is greater the CRQL, is the preparation be concentration on Form III than two times the MDL?	lank		[_]	·	-

ACTION:

Evaluation of Metals Data for the Contract Laboratory Program Data Assessment and Contract Compliance Review

SOP: HW-	2 Revision 13 Apper	ndix A.1	Sept. 2006
	If yes, reject (R) and red-ling positive sample results with some raw data less than 10 times the Preparation Blank value.	sample	<u>no</u> <u>n/a</u>
A.1.16	<pre>ICP-AES/ICP-MS Interference Ch NOTE:Not required for CN, Hg, Al, C</pre>		Form IV
A.1.16.1	Present and complete?	[	<u> </u>
	Was ICS analyzed at the beginn and end of each analytical run once for every 20 analytical s	, and	
	Was ICS analyzed at the beginn the ICP-MS analytical run?	ing of	, 1 <u> </u>
	ACTION:  If no, flag as estimated (J) as sample results.	11	
A.1.16.2	ICP-AES Method		
A.1.16.2.1	ICSA Solution: For ICP-AES, are the ICSA "Four values within the control limit of the true/established mean value	s + of CRQL	
	If no for any of the above, is sample concentration of Al, Ca, or Mg in the same units (ug/L ogreater than or equal to its reconcentration in the ICSA Solut Form IV?	Fe, or MG/KG) espective	
	ACTION: If yes, apply the following act all samples analyzed between a technically acceptable analysis ICS and a subsequent technicall	previous . of the	

analysis of the ICS in the analytical run:

Flag (J) as estimated only sample results  $\geq MDL$ 

Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP: HW-2 Revision 13 Appendix A.1 Sept. 2006
YES NO N/A

for which the ICSA "Found" value is greater than (True value+CRQL). Do not qualify non-detects. If the ICSA "Found" value is less than (True value-CRQL), flag non-detects as "UJ" and detects as "J".

## A.1.16.2.3 ICSAB Solution

For ICP-AES, are all analyte results in ICSAB within the control limits of 80-120 of the true/established mean value?

If no for any of the above, is the sample concentration of Al, Ca, Fe, or Mg in the same units (ug/L or MG/KG) greater than or equal to its respective concentration in the ICSAB Solution on Form IV?

#### ACTION:

If yes, apply the following action to all samples analyzed between a previous technically acceptable analysis of the ICS and a subsequent technically acceptable analysis of the ICS in the analytical run:

Flag (J) as estimated those associated sample results ≥ MDL for which the ICSAB analyte recovery is greater than 120% but ≤ 150%. If the ICSAB recovery falls within 50-79%, qualify sample results ≥ MDL as "J" and non-detects as "UJ". Reject (R) and red-line all sample results (detects & non-detects) for which the ICSAB analyte recovery is less than 50%. If the recovery is above 150%, reject (R) and red-line only positive results.

## A.1.16.3 ICP-MS Method

#### A.1.16.3.1 ICSA Solution:

For ICP-MS, are the ICSA "Found" analyte values within the control limits of ±CRQL of the true/established mean value?

ACTION:

If no, apply the following action to all samples reported from the analytical run:

Flag (J) as estimated only sample results  $\geq$  MDL if the ICSA "Found" value is greater than (True value+CRQL). Do not qualify non-detects. If the ICSA "Found" value is less than (True value-CRQL), flag the associated sample detects as "J" and non-detects as "UJ".

• • • •

Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP: HW-2	Revision 13	Appendix A.1	S	ept. :	2006
			YES	NO	N/A
A.1.16.3.3	For ICP-MS, are all a in ICSAB within the o 80-120% of the true/e value, whichever is g	control limits of established mean	[]		
	ACTION: If no, apply the foll samples reported from				
	50-79% flag (J) as es sample results ≥ MDL. those all sample dete which the ICSAB analy	for which the ICSAB greater than 120% but recovery falls within stimated the associated Reject (R) and red-line ects and non-detects for the recovery is less than is above 150%, reject (R)			
A.1.17		y: Pre-Digestion/Pre-Disti			
	_	a,Mg,K,and Na(both matrices);	Al and Fe	(soil	only)
A.1.17.1	Was Matrix Spike anal	ysis performed:			
	For each matrix type?				<del></del>
	For each SDG?				
	On one of the SDG samp	ples?	$(\angle)$		
	For each concentration (i.e., low, med., high)		[]		
	For each analytical Me (ICP-AES, ICP-MS, Hg, C				
	Was a spiked sample pranalyzed with the SDG		[ <u></u>		
	ACTION: If no for any of the a estimated(J)all the po for which a spiked sam analyzed.	ositive data			
	NOTE .				

If more than one spiked sample were analyzed for one SDG, then qualify the associated data based on the worst spiked

sample analysis.

Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP: HW-	2 Revision 13	Appendix A.1	S	Sept. 2	006
			YES	NO	N/A
A.1.17.2	Was a field blank or PE safor the spiked sample ana				
·	ACTION:  If yes, flag (J) as estimadata of the associated SDO which field blank or PE safor the spiked sample anal	G samples for ample was used	·		
À.1.17.3	Circle on each Form VA all recoveries that are outside control limits (75-125%) to sample concentrations less times the added spike concentrations.	de the hat have than four			
	Are all recoveries within control limits when sample concentrations are less the equal to four times the speconcentrations?  NOTE:  Disregard the out of control spirecoveries for analytes whose concentrations are greater than equal to four times the spike additional spike and spike and spike additional spike and spike additional spike additiona	an or ike ke or			
	Are results outside the con (75-125%) flagged with Lab on Form I's and Form VA?  ACTION: If no for any of the above the Contract - Problems/Norm	Qualifier "N" , write in	[]		
	Section of the Data Review	Narrative.			
1.17.4	Aqueous				
	Are any spike recoveries:				
	(a) less than 30%?			[]	_
	(b) between 30-74%?		<del></del>	[]	
	(c) between 126-150%?			r 1	
	(d) greater than 150%?			[]	
	ACTION:  If the matrix spike recover 30%, reject (R) and red-line aqueous data (detects & non between 30-74%, qualify all aqueous data > MDL as "J" a:	all associated -detects). If associated			

Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP: HW-	Revision 13	Appendix A.1	S	ept. 200	06	
			YES		N/A	
		126-150%, flag (J) $^{\prime\prime}$ . If greater than 150%, ine all associated data $_{\geq}$	MDL.			
	(NOTE:Replace "N" with	"J", "R" as appropriate.)				
A.1.17.5	Soil/Sediment	lely.				
	Are any spike recover	ries:				
	(a) less than 10%?			[]		
	(b) between 10-74%?			[]		
	(c) between 126-200%?	?		[]		
	(d) greater than 200%	<b>\$</b> ?		[]		
	ACTION: If yes for any of the as follows:	e above, proceed				
	if between 126-200%, data ≥ MDL as "J" If (R) and red-line all	<pre>ind red-line all ects &amp; non-detects);</pre>	=			
1.18	Lab Duplicates) - Fo	rm VI				
1.18.1	Was the lab duplicate	analysis performed:				
	For each SDG?					
	On one of the SDG sam	ples?				
	For each matrix type?				<del></del>	
	For each concentration (low or med.)?	n range				
	For each analytical Me (ICP-AES/ICP-MS,Hg,CN)		$\begin{bmatrix} 1 \end{bmatrix}$			
	Was a lab duplicate pranalyzed with the SDG					

Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

Revision 13 Appendix A.1 Sept. 2006 SOP: HW-2 YES NO A/NACTION: If no for any of the above, flag (J) as estimated all the SDG sample results (detects & non-detects) for which the lab duplicate analysis was not performed. If more than one lab duplicate sample were analyzed for an SDG, then qualify the associated samples based on the worst lab duplicate analysis. A.1.18.2 Was a Field Blank or PE sample used for the Lab Duplicate analysis? ACTION: If yes, flag as estimated (J) all SDG sample results (hits & non-detects) for which Field Blank or PE sample was used for duplicate analysis. A.1.18.3 Circle on each Form VI all values that are: RPD > 20%, or Absolute Difference > CROL Are all values within control limits (RPD  $\leq$  20% or absolute difference < +CRQL)? If no, are all results outside the control limits flagged with an "*" (Lab Qualifier) on Form VI and on all Form I's? ACTION: If no, write in the Contract-Problems/ Non-Compliance Section of the Data Review Narrative. NOTE: The laboratory is not required to report on Form VI the RPD when both values are non-detects. A.1.18.4 Aqueous

A.1.18.4.1 When sample and duplicate values are both

 $\geq$  5xCRQL (substitute MDL for CRQL when MDL > CRQL),

Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP: HW-2	Revision 13	Appendix A.1		Sept. 20	106
		·	YES	<u>NO</u>	<u>N/A</u>
	is any RPD > 20% but < 10	0%?		[]	
	is any RPD $\geq$ 100%?			[]	_
	ACTION:  If the RPD is > 20% but < flag (J) as estimated the sample data > CRQL. If th > 100%, reject (R) and re associated sample data > (NOTE:Replace "*" with "J" or	associated e RPD is d-line the CRQL.			
A.1.18.4.2	When the sample and/or du <5xCRQL (substitute MDL for is the absolute difference and duplicate values:	CRQL when MDL >CRQL),			
	> <u>+</u> CRQL?			[]	_
	> ± 2xCRQL?			[]	_
	ACTION:  If the absolute difference flag as estimated all the sample results > MDL but < and non-detects as "UJ". I difference is > 2xCRQL, red-line all the associate and detects > MDL but < 5xNOTE:  1. Replace "*" with "J", "UJ" on 2. If one value is >CRQL and the calculate the absolute difference the MDL, and use this difference is and the MDL, and use this difference is solute is s	associated  5 5xCRQL as "J"  If the absolute  2 ject (R) and  2d non-detects  5 CRQL.  1 "R" as appropriate.)  2 other value is non-detect,  2 rence between the value > CR	_		
1.1.18.5	Soil/Sediment				
4.1.18.5.1	When sample and duplicate are both $\geq 5 \times \text{CRQL}$ (substitut CRQL when MDL > CRQL),		( A	, W A	, W
	is any RPD $\geq$ 35% but < 120	<b>%</b> ?	V/	· [ <u>/</u> ]/	
	is any RPD ≥ 120%?			[ <u>_</u> ]	<del></del>

CTTON:

If the RPD is  $\geq$  35% and < 120%, flag (J) as estimated the associated sample

Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

 SOP: HW-2
 Revision 13
 Appendix A.1
 Sept. 2006

 YES
 NO
 N/A

data  $\geq$  CRQL. If the RPD is  $\geq$  120%, reject (R) and red-line the associated sample data  $\geq$  CRQL.

A.1.18.5.2 When the sample and/or duplicate value <5xCRQL(substitute MDL for CRQL when MDL > CRQL), is the absolute difference between sample and duplicate:

 $> \pm 2 \times CRQL$ ?

 $> \pm 4 \times CRQL$ 

### ACTION:

If the absolute difference is > 2 x CRQL, flag all the associated sample results  $\geq$  MDL but < 5xCRQL as "J" and non-detects as "UJ". If the absolute difference is > 4xCRQL, reject (R) and red-line all the associated non-detects and detects  $\geq$  MDL but <5xCRQL.

### NOTE:

- Replace "*" with "J", "UJ" or "R" as appropriate.)
- If one-value is >CRQL and the other value is non-detect, calculate the absolute difference between the value > CRQL and the MDL, and use this difference to qualify sample results.

### A.1.19 Field Duplicates

### Aqueous Field Duplicates

A.1.19.1 Was an aqueous Field Duplicate pair collected and analyzed?
(Check Sampling Trip Report)

### ACTION:

If yes, prepare a Form (Appendix A.4) for each aqueous Field Duplicate pair. Report the sample and Field Duplicate results on Appendix A.4 from their respective Form I's. Calculate and report RPD on Appendix A.4 when sample and its Field Duplicate values are both > 5xCRQL. Calculate and report the absolute difference on Appendix A.4 when at least one value (sample or duplicate) is <5xCRQL. Evaluate the aqueous Field Duplicate analysis in accordance with the

Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP: HW-	2 Revision 1	3	Appendix A.	. 1		Sept.		
					YES	<u>NO</u>	N/A	ŧ
	QC criteria st	tated in Sec	tions A.1.19.2	and A.1	.19.3.			
	<ol> <li>Do not calcula</li> <li>Substitute MDL</li> <li>If one value is non-detect, cal</li> </ol>	ate RPD when bo for CRQL when s >CRQL and the culate the abs ue > CRQL and	other value is colute difference the MDL, and use					
A.1.19.2	Circle all val for Field Dupl			A.4)				
	RPD <u>&gt;</u> 20% or	-						
	Difference > ±	CRQL						
	When sample an both ≥5xCRQL (MDL > CRQL),	•						
	is any RPD ≥ 2	0%?				[	_) _:	
	is any RPD ≥ 1	00%?			<del></del>	[	_1	
	ACTION:  If the RPD is the associated results > CRQL and red-line or Field Duplicate	sample and . If the RPD nly the asso	its Field Dupl ) is $\geq$ 100%, re ociated sample	icate ject(R)				
4.1.19.3	When the sample <5xCRQL (substi is the absolute and duplicate:	tute MDL for	CRQL when MDL >	CRQL),				
	> <u>+</u> CRQL?					[		
	> <u>+</u> 2 x CRQL?					[	.)	_
	ACTION: If the absolute flag detects > and non-detects	MDL but < 5	xCRQL as "J"	ıce				

-36-

is > 2xCRQL, reject (R) and red-line non-detects

Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP: HW-	2 Revision 13	Appendix A.1	S	Sept. 2006
	and results $\geq$ MDL but <5xCl and its Field Duplicate.	RQL of the sample	<u>YES</u>	<u>NO N/A</u>
	Soil/Sediment Field Dupl	<u>icates</u>		
A.1.19.4	Was a soil field duplicate collected and analyzed? (Check Sampling Trip Report)	pair	[]	
	ACTION: If yes, for each soil Field pair proceed as follows:	l Duplicate		
	Prepare Appendix A.4 for ear pair. Report on Appendix A. Field Duplicate results in respective Form I's. Calcul sample and its duplicate vathan 5xCRQL. Calculate and absolute difference when at (sample or duplicate) is < 5 Field Duplicate analysis in QC Criteria stated in Section	4 all sample and its MG/KG from their ate and report RPD who lues are both greater report the least one value xCRQL. Evaluate the accordance with the		
	NOTE:  1. Do not transfer "*" from Form 2. Do not calculate RPD when both 3. Substitute MDL for CRQL when MDL 4. If one value is >CRQL and the of value is non-detect, calculate tabsolute difference between the value > CRQL and the MDL, and any the criteria to qualify the results.	values are non-detects. L > CRQL. ther the		
A.1.19.5	Circle on each Appendix A.4 values that have:	all		
	RPD $\geq$ 35%, or Difference $> \pm$ When sample and duplicate va are both $\geq$ 5xCRQL (substitute CRQL when MDL $>$ CRQL),	lues		
	is any RPD <u>&gt;</u> 35% but < 120%?	-		
	is any RPD ≥ 120%?		<del>,</del>	

ACTION:

If the RPD is  $\geq$  35% but < 120%,

Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP: HW-2	Revision 13	Appendix A.1	S	ept. 2006	
	flag only the associated and its Field Duplicate r  CRQL as "J". If the RPD reject (R) and red-line cand its Field Duplicate r	results o is <u>&gt;</u> 120%, only the sample	<u>YES</u>	<u>NO N/A</u>	
A.1.19.6	When the sample and/or du <5xCRQL (substitute MDL for is the absolute difference and Field Duplicate:	CRQL when MDL > CRQL),			
	$> \pm 2 \times CRQL$ ?				
	> <u>+</u> 4 x CRQL?			() _	
	ACTION:  If the absolute difference Sample and its Field Duple but <5xCRQL as "J" and not If the difference is >4xCl red-line non-detects and <5xCRQL of the sample and	icate resuts <u>&gt;</u> MDL n-detects as "UJ". RQL, reject(R) and detects <u>&gt;</u> MDL but			
A.1.20	Laboratory Control Sample	(LCS) - Form VII			
A.1.20.1	Was one LCS prepared and a	analyzed for:			
	Each SDG?				
	Each matrix type?				
	Each batch samples digeste For each Method(ICP-AES,ICused?				
	Was an LCS prepared and arthe samples?  ACTION:  If no for any of the above Telephone Record Log and of the PO or TOPO for submitt LCS results. Flag (J) as eached ata for which an LCS analyzed.	e, prepare contact cal of the estimated all	(		

If only one LCS was analyzed for

Standard Operating Procedure

USEPA Region 2

Evaluation of Metals Data for the Contract Laboratory Program

Data Assessment and Contract Compliance Review

			_		,
SOP: HW-	Revision 13	Appendix A.1		ept. 20	
	more than 20 samples, then the factorized are not flagged but all additional samples must be qualified (J).	ged(J),	<u>YES</u>	<u>NO</u>	<u>N/A</u>
A.1.20.2	Aqueous LCS				
	Circle on each Form VII the recoveries outside control		·		
	NOTE: 1.Use digested ICV as LCS 2.Use distilled ICV as LCS				
	Is any LCS recovery:				
	Less than 50%?			[]	
	Between 50% and 79%?			[]	
	Between 121% and 150%?			[]	
	Greater than 150%?		<del></del> .	[]	_
	ACTION:  If the LCS recovery is less reject (R) and red-line all sample data (detects & non-ca recovery between 50-79%, fas "J" all non-detects as "U recovery is between 121-150% detects as "J". if the recovery than 150%, reject (R) and respect than 150%, reject (R)	associated detects); for lag detects J". if the LCS , flag only ery is greater			
A.1.20.3	Solid LCS				
	If an analyte's MDL is equal greater than the true value of the "Action" below analyte even though the LCS control limits.	of LCS, for that			
1	Is the LCS "Found" value greathan the Upper Control Limit seported on Form VII?	ater	[_		

ACTION:

Evaluation of Metals Data for the Contract Laboratory Program Data Assessment and Contract Compliance Review

SOP: HW-	Revision 13	Appendix A.1	Se	ept. 2006	
	If yes, flag (J) all the ass detects > MDL as estimated		YES	NO N/A	
	Is the LCS "Found" value low than the Lower Control Limit reported on Form VII?				
	ACTION: If yes, flag detects as "J" non-dectes as "UJ".	and			
A.1.21	ICP-AES/ICP-MS Serial Dilu NOTE:Serial dilution analysis is r when the initial concentration is greater than 50 x MDL.	equired only			
A.1.21.1	Was a Serial Dilution analys performed:	is			
	For each SDG?				
	On one of the SDG samples?		[_]		
	For each matrix type?				
	For each concentration range (low or med.)?		$[\underline{\hspace{1cm}}]$		
	Was a Serial Dilution sample analyzed with the SDG samples	s?			
	ACTION:  If no for any of the above, as estimated (J) detects ≥ MI all the SDG samples for which ICP Serial Dilution Analysis not performed.	DL of n the			
1.1.21.2	Was a Field Blank or PE sample for the Serial Dilution Analy			[_]	
	ACTION: If yes, flag as estimated (J)  MDL of all the SDG samples	detects			
1.21.3	Circle on Form VIII the Perce	ent Differences			

(%D) between sample results and its dilution results that are outside the control limits  $\pm$  10%

Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP: HW	-2 Revision 13	Appendix A.1	S	ept. 2006
	when initial concentration	s > 50 x MDLs.	<u>YES</u>	NO N/A
	Are results outside the co limits flagged with an "E" on Form VIII and all Form	(Lab Qualifier)	[	
	ACTION:  If no, write in the Contraction of Review Narrative.			
A.1.21.4	Are any %D values:			
	> 10%?			[]
	≥ 100%?			
	<u>ACTION</u> : If the Percent Difference (greater than 10%, flag (J) all associated samples whos if the %D is $\geq$ 100%, rejectable associated samples with	as estimated se raw data > MDL; st (R) and red-line		
	(NOTE:Replace "E" with "J" or	"R" as appropriate.)		
A.1.22	Total/Dissolved or Inorgani	c/Total Analytes		
A.1.22.1	Were any analyses performed dissolved as well as total a on the same sample(s)? Were any analyses performed inorganic as well as total a on the same sample(s)?	analytes		
	ACTION:  If yes, prepare a Form (Appeto compare the differences had dissolved (or inorganic) and analyte concentrations. Compatifierence on Appendix A.5 and of the total analyte only what the following conditions are	petween total oute each is a percent den both of		
	<ul><li>(1) The dissolved(or inorgan is greater than total conce</li><li>(2) greater than or equal to</li></ul>	ntration, and		
.1.22.2	Is any dissolved (or inorgan concentration greater than i	ts	r	, /

Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP: HW-2	Revision 13	Appendix A.1	Se	ept. 2006	
			YES	NO N/A	
A.1.22.3	Is any dissolved (or inor concentration greater the total concentration by many total	han its			
	ACTION: If the percent difference than 20%, flag (J) both and total concentrations the difference is more to and red-line both the variations.	dissolved/inorganic a as estimated. If than 50%, reject (R)			
A.1.23	Field Blank - Form I NOTE: Designate "Field Blank	ank" as such on Form I			
	Was a Field/Rinsate Bank and analyzed with the SD		[]		
	If yes, is any Field/Rin absolute value of an ana greater than its CRQL(or	alyte on Form I			
	If yes, circle the Field on Form I that is greate CRQL, (or 2 x MDL when MDL >	r than the			
	Is any Field Blank value than CRQL also greater to Preparation Blank value?	han the			
	If yes, is the Field Bla (> CRQL and > the prep. already rejected due to criteria?	blank value)	[]		

### ACTION:

If the Field Blank value was not rejected, reject all associated sample data (except the Field Blank results) greater than the CRQL but less than the Field Blank value. Reject on Form I's the soil sample results whose raw values in ug/L in the instrument printout are greater than the CRQL but less than the Field Blank value in ug/L. Flag as "J" detects between the Field Blank value and 10xField Blank value. If the sample result > MDL but < CRQL, replace it with CRQL-U.

If the Field Blank value is less than the

Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP:	HW-2	Revision 13		Appendix	A.1		Sept.	2006
		Prep.Blank valu				<u>YES</u>	NO	<u>N/A</u>
		NOTE:  1. Field Blank res due to other cr qualify field s  2. Do not use Rins soils to qualif	iteria canno amples. ate Blank as	t be used to	ersa.			
A.1.2	4	Verification of	Instrumen	ıtal Paramete	ers - Form	IX, XA,	XB, X	I
A.1.2	4.1	Is verification	report pr	resent for:				
		Method Detectio	n Limits (	Form IX-Annu	ally)?			
		ICP-AES Interel (Form XA & XB -			rs			
		ICP-AES & ICP-M (Form XI-Quarter		anges		[ <u>_</u> ]		
		ACTION: If no, contact ( submittal from (						
.1.24	.2 <u>M</u>	ethod Detection	Limits - 1	Form IX				
.1.24	.2.1	Are MDLs present	on Form	IX for:				,
	i	All the analytes	?			[_]		
	I	All the instrume	nts used?					
		Digested and und samples and Cali						
	i	CP-AES and ICP- nstruments are a ame analyte?				[]		_
	I T	CTION: f no for any of elephone Record O/TOPO for submi	Log and co	ontact CLP				

Narrative if the MDL concentration is not less than % CRQL.

Non-Compliance Section of the Data Review

the laboratory. Report to CLP PO and

write in the Contract Problems/

Evaluation of Metals Data for the Contract Laboratory Program
Data Assessment and Contract Compliance Review

SOP: HW-2	Revision 13	Appendix A.1	Se	pt. 2006
			YES	NO N/A
A.1.24.2.2	Is MDL greater than t for any analyte?	he CRQL		
	If yes, is the analyte on Form I greater that the sample analyzed on whose MDL exceeds CRQI	n 5 x MDL for n the instrument	[]	
·	ACTION:  If no, flag as estimate values less than five the analyte whose MDL	times MDL for		
A.1.24.3	Linear Ranges - Form D	<u>KI</u>		
A.1.24.3.1	Was any sample result the high linear range or ICP-MS?		<del></del>	
	Was any sample result the highest calibration for mercury or cyanide	on standard		
	If yes for any of the the sample diluted to result reported on For	obtain the	[]	
	ACTION: If no, flag (J) as est affected detects (> MD on Form I.			
A.1.25	ICP-MS Tune Analysis	- Form XIV		
	Was the ICP-MS instrum tuned prior to calibra		[]	
	ACTION: If no, reject (R) and sample data for which performed.			
	Was the tuning solutio or scanned at least fi consecutively?		[]	
	Were all the required spanning the analytica present in the tuning	l range	[]	
1	Was the mass resolution	n within		•

Evaluation of Metals Data for the Contract Laboratory Program Data Assessment and Contract Compliance Review

SOP. HW-	Revision 13	Appendix A.1	Sept. 2006
<u>501 :</u>			YES NO N/A
0.1 amu 1	for each isotope in the tuning solution?		
	Was %RSD less than 5% isotope of each analytuning solution?		[]
	ACTION:  If no for any of the a all results > MDL associated with that I	ociated with that , and all non-detects	
A.1.26	ICP-MS Internal Standa	ards - Form XV	
A.1.26.1	Were the Internal Star to all the samples and samples and calibration (except the Tuning Sol	d all QC on standards	
	Were all the target and masses bracketed by the of the five internal s	ne masses	
	ACTION:  If none of the Internal added to the samples, red-line all the associated (detects & non-detects standards were used but the analyte masses, red only the analyte result the internal standard.	reject (R) and iated sample data ). If internal t did not cover all ject (R) and red-line ts not bracketed by	
A.1.26.2	Was the intensity of a Standard in each sample of the intensity of the Standard in the calibration	e within 60-125% e same Internal	[_] _
	If no, was the original two fold, Internal Star sample re-analyzed?		
	Was the %RI for the two within the acceptance l		
	ACTION:  If no for any of the all as "J" and non-detects analytes with atomic m	"UJ" of all the	
	atomic mass of the inte	ernal standard lighter	

. . . . . .

Evaluation of Metals Data for the Contract Laboratory Program Data Assessment and Contract Compliance Review

SOP: HW	-2 Revision	L3 App	endix A.2	Sej	ot. 2006
than th	atomic ma	nternal standard, an ss of the internal s affected internal s	standard heavier		
A.1.27	Percent S	olids of Sediments			
A.1.27.	1 Are perce	nt solids in sedimen	ıt(s):		
	< 50%?				
	non-detec	ualify as estimated ts of a sample that 50%(i.e.,moisture co	has percent solid	.s	
	that were no	y the sample results ot previously flagged r QC criteria.			
		·			
- -	ada Doto D	oudou Nommotice			
THOTGO	HIC Data R	eview Narrative			
Case#		Site:		atrix: Soil	
SDG#		Lab:		Water	F
Sampling	g Team:	Reviewer:		Other	
		n Flags: flags may have beer by the data user.	applied in red b	y the data	validator and must
J -	-	This flag indicates	the result quali	fied as es	timated
R a	and Red-Line -		are known to cont	ain signif	ates unusable value. icant errors based or. the data user.
υ -	-	This data validation MDL when associated			ample results
<u>Ful</u>	ly Usable Data	- The results t	hat do not carry '	"J" or "red	d-line" are fully
	boratory Qual	<u>ifiers:</u> ory applies a contra	ctual qualifier o	n all	

### LDC# 66693 - Glen Cove-10 Garvies Point Road

SDG: 480739511

Analytical Method SW6010C												
Sample 10	Lab Sample ID	Chemical Name	Anal Date	Result	Report	Detect	Lab Qual	Val Qual	Final qual	RL	MDL	Units
4802225111A	4802225111A	ARSENIC	1/13/2015		Yes	N	U		U	2.0	0.40	
4802225111A	4802225111A	LEAD	1/13/2015		Yes	N	U		U	1.0	0.24	
CC-C-019 (0-2)-20150109	480-73951-8	LEAD	1/13/2015	473	Yes	Υ		J	J	1.1	0.27	mg/kg
CC-C-019 (0-2)-20150109	480-73951-8	ARSENIC	1/13/2015	993	Yes	Υ				2.3	0.45	mg/kg
CC-C-022 (0-2)-20150109	480-73951-7	LEAD	1/13/2015	371	Yes	Υ		J	J	1.0	0.25	mg/kg
CC-C-022 (0-2)-20150109	480-73951-7	ARSENIC	1/13/2015	187	Yes	Υ				2.1	0.41	mg/kg
CC-C-023 (6-8)-20150109	480-73951-9	LEAD	1/13/2015	215	Yes	Υ		J	J	1.1	0.27	mg/kg
CC-C-028 (0-2)-20150109	480-73951-10	ARSENIC	1/13/2015	13	Yes	Υ				2.0	0.41	mg/kg
CC-C-029 (8-10)-20150109	480-73951-11	LEAD	1/13/2015	141	Yes	Υ		J	J	1.1	0.27	mg/kg
CC-C-030 (8-10)-20150109	480-73951-12	LEAD	1/13/2015	175	Yes	Υ		J	J	1.1	0.27	mg/kg
LT-C-003 (0-2)-20150107	480-73951-3	ARSENIC	1/13/2015	2.7	Yes	Υ				2.2	0.45	mg/kg
LT-C-024 (2-4)-20150107	480-73951-4	ARSENIC	1/13/2015	6.9	Yes	Υ				2.1	0.42	mg/kg
LT-C-024 (2-4)-20150107	480-73951-4	LEAD	1/13/2015	7.2	Yes	Υ		J	J	1.0	0.25	mg/kg
LT-C-026 (6-8)-20150107	480-73951-5	ARSENIC	1/13/2015	4.3	Yes	Υ				2.3	0.46	mg/kg
LT-C-035 (4-6)-20150107	480-73951-6	ARSENIC	1/13/2015	652	Yes	Υ				12.3	2.5	mg/kg
LT-C-056 (2-4)-20150107	480-73951-1	ARSENIC	1/13/2015	13.1	Yes	Υ				2.3	0.47	mg/kg
LT-G-019 (2-14)-20150107	480-73951-2	ARSENIC	1/13/2015	3.5	Yes	Υ				2.5	0.51	mg/kg

SDG: 480739512

Analytical Method SW6010C											
Sample ID	Lab Sample ID	Chemical Name	Anal Date	Result	Report	Detect	Lab Quai Val Q	ual Final qual	RL	MDL	Units
4802228861B	4802228861B	ARSENIC	1/16/2015		Yes	N	U	U	0.015	0.0056	
4802230902A	4802230902A	ARSENIC	1/16/2015		Yes	N	U	U	0.015	0.0056	
CC-C-019 (0-2)-20150109	480-73951-8	ARSENIC	1/16/2015	0.36	Yes	Υ			0.015	0.0056	mg/l
CC-C-022 (0-2)-20150109	480-73951-7	ARSENIC	1/16/2015	0.0059	Yes	Υ	J	J	0.015	0.0056	mg/l
LT-C-035 (4-6)-20150107	480-73951-6	ARSENIC	1/19/2015	0.2	Yes	Υ			0.15	0.056	mg/l

SDG: 480742201

Analytical Method SW6010C												
Sample ID	Lab Sample ID	Chemical Name	Anal Date	Result	Report	Detect	Lab Qual	Val Qual	Final qual	RL	MDL	Units
4802231341A	4802231341A	ARSENIC	1/16/2015		Yes	N	U		υ	1.9	0.38	
4802231341A	4802231341A	LEAD	1/16/2015		Yes	N	U		U	0.96	0.23	
LT-G-022 (0-2)-20150114	480-74220-1	ARSENIC	1/16/2015	76.6	Yes	Υ				2.3	0.47	mg/kg
LT-G-022 (0-2)-20150114	480-74220-1	LEAD	1/16/2015	285	Yes	Υ		J	J	1.2	0.28	mg/kg
LT-GI-001 (4-6)-20150114	480-74220-2	LEAD	1/16/2015	341	Yes	Υ		J	J	1.1	0.27	mg/kg